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## Career Decision Support System For Graduating High School Students

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### Abstract

This study aimed to create and evaluate an online decision support system (DSS) which allows students to take a multiple intelligence test, determine their most dominant intelligence, suggest the most suitable courses to take for college and provide an interpretation for the result of the evaluation. The system captures the knowledge of an expert in guidance and counseling and embodied it to its knowledge base using fuzzy logic, graph search and depth first search.

The system was tested at University of Iloilo–Basic Education Department, Iloilo City and Tabugon National High School, Tabugon, Dingle, Iloilo by a conveniently chosen graduating high school students. The result of the system was evaluated by 39 guidance counselors from the different secondary schools from the province and city of Iloilo. The evaluation of the system's functionality was assessed by 15 respondents from the Information and Communications Technology (ICT) sector using the International Organization for Standardization (ISO) 9126.

The reliability of the system was evaluated by comparing the system output with the two other assessment tools from Western Visayas College of Science and Technology (Weber standard) and the University of Iloilo (NDDCTE standard).

Using Cramer's V, the result of the evaluation of the NDDCTE standard as compared to the Decision Support System of the data taken from University of Iloilo and the data taken from Tabugon National High School has significant relationship. It implies that there is no significant difference in the results of the two evaluations.

The result of the evaluation using Cramer's V of the Weber standard as compared to the Decision Support System of the data taken from University of Iloilo and the data taken from Tabugon National High School has significant relationship. It implies that the two results are highly related with each other.

Using arithmetic mean (M) and standard deviation (SD), the result of the evaluation of the system's output based on the perception of 39 guidance counselor resulted to a "Very Satisfactory" result. This implies that the system generates the dominant intelligence of the student, provide accurate course and study tips based on his/ her dominant intelligence.

The evaluation of the respondents to the system's software quality characteristics based on ISO 9126 resulted to a value described as "Very Effective". It confirmed that the overall software characteristics of the system passed the ISO 9126 standards.

Keywords: decision support system, career guidance, multiple intelligence

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## **Introduction**

In almost every aspect of life which needs assessment or opinion, the experts are the ultimate source. Their opinion is highly respected and their services are highly valued. (Hisdal, 1998)

Graduating secondary students are never an exception to this reality. They need an expert advice on the course to take for college and an assessment of their intelligence.

The theory of multiple intelligences holds that every individual have eight different intelligences in differing proportions. (Laughlin, 1999). The theory further emphasizes that every individual should pursue a career based on his most dominant intelligence.

According to Catherine O. Espero in her research entitled “Correlates of Career Decisions among Children of Overseas Filipino Workers”, almost half of her respondents consulted and asked the opinion of the significant people around them in choosing their college degree, especially their parents, relatives, friends, and teachers. In this study, it was observed that the most common factors considered by students in choosing college degree were interests, parents’ suggestion, salary/job security, and academic achievement.

In the research entitled “The analysis of Factors affecting choice of college” (Lee & Chatfield) student chooses their college degree primarily because of the prospects of landing a job after graduating. Students choose their college degree in the thoughts that they can easily find jobs after graduation. Another factors stated in the research are parents and guardians advice. It was noted that students most likely choose a college degree because it was their parents or guidance advice.

Students need all facets of the career planning process including: finding ways to pursue passions, and coming to understand interests and abilities. When a student needs an expert opinion for a career in college, the student needs not only the list of all the courses but also the classification of the kind of student that should take the particular course based on the theory of multiple intelligences.

The Career Decision Support System for Graduating High School students is carried out to meet the needs of the student in terms of assessing his/her multiple intelligence domains and suggest the possible courses that are most fitting to take in college. It encapsulates the knowledge of an expert and renders expert opinion based on the response of the student and its knowledge base.

## **Statement of Objectives**

This study aimed to develop a web-based decision support system as a tool to assess graduating secondary students on their intelligence domain based on multiple intelligence theory and guide them on their choice of courses.

Specifically, this study is conducted with the following objectives:

1. Develop a web- based decision support system that could assess the dominant intelligence of the student from the most dominant to the least dominant, provide a list of courses suited to the student according to his/ her intelligence domain specifying the most probable course a student should take in college, provide a list of study tips suited to the student's dominant intelligence, and provide an interpretation to the student on how the system arrived at such an assessment.
2. Evaluate the validity and reliability of the system's output.
3. Evaluate the validity of the system based on ISO 9126 standards.

## **Methodology**

### *Project Description*

Career Decision Support System for High School Graduating Students is a web information system which will allow an automated assessment of the multiple intelligence of the student and provide career guidance. The advantage of the system is to have the student master a common core of knowledge. Moreover, the system will provide curricular differentiation.

The system will be installed in a web server as a web application. The user interface of the system will be in the form of web pages. The student will access the system using his/her web browser. The student, while using the



system can either take the assessment, view and print the result and also view the explanation of how the system was able to come up to its assessment.

The activity starts when the user accesses the system. The user will initially have two options in the main page. The user can either register or log in. To take the assessment, the user registers his/her User Name and password. If the registration process is completed, the user can now log in to take the assessment. If the user name and password matches with the system, the system displays the evaluation result to the user. If the user forgets his/her password, the user has to click on the Forgot Password check box.

After logging in the system, the user has three options; whether to take the assessment, view the result or log off. The user must click the Take Test menu in order to take an assessment. The site then prompts the user with questionnaires relating to multiple intelligences. The user has to answer all the questions. When the user answers all the questions, the system displays the evaluation result. The user has the option to view the system's interpretation on the result of the evaluation or to return to the home page.

When the user wants to view the result of the evaluation the next time he/she visits the site, the user should enter first his/ her username and password so as to access the system.

The user has the option to view the system's explanation on the result of the evaluation. If the user selects the option for the system to interpret the result, the system generates the set of interpretation on how the system has processed his/ her answers, the total score per MI category, the user's dominant MI intelligence and the appropriate courses for him/her. Also, the user has the option to return to the home page after viewing the result or print the result if he wanted to.

Formal termination of the system for a specific user ends when the user clicks on the Log Off menu.

#### *Respondents of the Study*

The proponent, using judgment sampling selected from the 246 secondary school that can be viewed at Department of Education website. The proponent uses the 'rule of thumb' formulated by Dr. John Curry, Professor of Educational Research at North Texas State University which stated that a 0 to 100 population should have a 100% sampling size, a 101-1000 population should have at least 10% sampling size, a 1,001- 5000 population should have at least 5% sampling size and a population which is above 10,000 should have 1% sampling size.

Using the rule of thumb, the population for this study which was 246 respondents falls on the 10% minimum sampling size. Therefore, the minimum sampling size needed by the proponent is 25 secondary school guidance counselors. However, the proponent collected 39 respondents which are 15.04% of the total population.

To evaluate the quality characteristics of the system, the proponent selected people from the Information and Communications Technology (ICT) whose solid educational background, work experience and integrity could vouch for their qualification. The proponent came up with 15 respondents which includes Systems Analyst, Network Administrator, Technical Support, Web Designer, and System Developer.

#### *Data Processing and Statistical Treatment*

Statistical Package for Social Sciences (SPSS) and Microsoft Excel 2007 were utilized to create and record variables or data collected for this study. To determine the reliability of the system, Cramer's V was used to determine if the compared variables are related.

Mean. To determine the degree of validity of the system's output, the mean was used.

For purposes of scoring, the following mean score were used.

1.00 – 1.75      -- Very Satisfactory

1.76- 2.50      -- Satisfactory

2.51-3.25      -- Less Satisfactory

3.26- 4.00      -- Not Satisfactory

Cramer's V. To determine the relationship of NDDCTE, Weber and DSS, the Cramer's V was utilized.



## Results And Discussion

In testing the reliability and validity of the system, a three-phase approach was used. The first phase had the purpose of affirming the reliability of the system by comparing the system's assessment results with other assessment tools, the second phase focused in determining the validity of the system's output and the last phase centered on the validation of the quality of the system.

To test the reliability of the system by comparing the system's assessment results with other assessment tools a data gathered from University of Iloilo- Phinma Education Network Basic Education Department consisting of 43 respondents took the Weber standard, North Dakota Department of Career and Technical Education (NDDCTE) standard and the DSS. Forty-one students or 95% of all the respondents got the same assessment result from the NDDCTE standard as compared to the DSS assessment while 39 students or 91% got the assessment on their dominant intelligence from the Weber standard as compared to DSS.

While from the data gathered from Tabugon National High School, 38 respondents took the same assessment. Thirty six (36) students or 95% got the same assessment result from NDDCTE standard as compared to DSS and 37 students or 97% got the same dominant intelligence from the Weber standard as compared to the output of DSS.

The result showed that using the Cramer's V, there was a significant relationship between Weber assessment tool and Decision Support System (Cramer's V = .893,  $p = .000$ ). This means that the two tests were highly related with each other. It implies that if a student will use either Weber assessment tool or the Decision Support System, the two assessments will generate the same result.

The result showed that using the Cramer's V, there was a significant relationship between NDDCTE assessment tool and Decision Support System (Cramer's V = .934,  $p = .000$ ). A Cramer's V of .934 signifies a high relationship between the two assessment results. This means that the two tests were highly related with each other.

### *Evaluation of the System Output by the Guidance Counselors*

Using arithmetic mean and standard deviation, the validity level of the system's output was determined based on the data gathered from 39 respondents consisting of people involved in guidance and counseling.

The Mean value of 1.00 to 1.75 is described as very Satisfactory, 1.76 to 2.50 as Satisfactory, 2.51 to 3.25 as Less Satisfactory and 3.26 to 4.00 as Not Satisfactory.

Table 1 shows in its entirety, the respondents' evaluation of the system's output resulted to a mean value of 1.41 and  $SD = 0.54$ . This value is designated as "Very Satisfactory". This means that the evaluation given by 39 guidance counselors confirmed that the overall output and functionality of the system was accurate. This implies that the answers of the respondents are not scattered or there is a common answer between the respondents. The result implies that the overall functionality of the system is very satisfactory or the results of the assessment process are accurate.

This implies that the system was able to determine the most dominant intelligence of the student, list the appropriate courses suited to the dominant intelligence of the student, provide the list of study tips appropriate to the student's intelligence, and provide an interpretation that makes the student understand how the system generates its assessment. The result implies that the overall functionality of the system is Very Satisfactory.



Table 1. *Summary of Responses on the Evaluation of the System Output*

| Statement                                                                                                                    | Mean | Description       | Standard Deviation |
|------------------------------------------------------------------------------------------------------------------------------|------|-------------------|--------------------|
| 1. The system was able to measure the intelligence of the student in each of the multiple intelligence categories.           | 1.38 | Very Satisfactory | 0.49               |
| 2. The system was able determine the most dominant intelligence of the student according to his/her answer.                  | 1.44 | Very Satisfactory | 0.60               |
| 3. The system was able to provide the suggested list of courses that the student should take in college.                     | 1.36 | Very Satisfactory | 0.54               |
| 4. The system was able to list all the courses that are appropriate to the dominant intelligence of the student.             | 1.54 | Very Satisfactory | 0.51               |
| 5. The system was able to display the study tips that are appropriate to the student dominant intelligence.                  | 1.44 | Very Satisfactory | 0.55               |
| 6. The list of study tips displayed by the system may help the student improve their study habits.                           | 1.33 | Very Satisfactory | 0.53               |
| 7. The system was able to provide an interpretation of how the system arrives to its assessment.                             | 1.38 | Very Satisfactory | 0.49               |
| 8. The interpretation generated by the system make the student understands how their intelligence was derived by the system. | 1.54 | Very Satisfactory | 0.64               |
| 9. The system was able to list and justify at most, the top 3 priority courses based on the student's intelligence.          | 1.36 | Very Satisfactory | 0.54               |
| As a whole                                                                                                                   | 1.41 | Very Satisfactory | 0.54               |

#### *Evaluation of the System based on ISO 9126 Standards*

To evaluate the conformance of the system to ISO 9126 standards a group of Information Technology standards was consulted by the proponent to evaluate the system. Each respondent uses the system and evaluate its functionalities based on ISO 9126 standards.

Table 2 shows the result of the system's evaluation regarding the system's conformance to ISO 9126 standards from 15 respondents. In its entirety, the respondents' evaluation of the system's output resulted to a mean value of  $M=1.31$ ,  $SD=0.57$ . This value is designated as "Very Effective". This means that the evaluation given by 15 Information Technology professionals resulted to a "Very Effective" result. The number of cases falls between 0.73 and 1.88 which means that the common answer of the respondents falls between Very Effective and Effective responses. The result implies that the overall functionality of the system is very effective. This implies that the system is acceptable with no revisions as evaluated by different IT professionals.

Table 2. *Result of the Evaluation of the System based on ISO 9126 Standards.*

| Question        | Mean | Description    | Standard Deviation |
|-----------------|------|----------------|--------------------|
| Functionality   | 1.23 | Very Effective | 0.48               |
| Reliability     | 1.39 | Very Effective | 0.61               |
| Usability       | 1.40 | Very Effective | 0.63               |
| Efficiency      | 1.21 | Very Effective | 0.47               |
| Maintainability | 1.29 | Very Effective | 0.53               |
| Portability     | 1.32 | Very Effective | 0.68               |
| As a whole      | 1.31 | Very Effective | 0.57               |

#### **Conclusions**

Based on the results as earlier presented, the following conclusions were drawn:

1. There is no significant difference in the DSS output in determining the dominant intelligence of the student as compared to the result of conducting a multiple intelligence test using the multiple intelligence assessment tools used by West Visayas College of Science and Technology (Weber Multiple Intelligence Exam) and the University of Ililo – PEN (North Dakota Department of Career and Technical Education or NDDCTE multiple intelligence exam). This indicates that using the DSS in conducting a multiple intelligence test generally yields an identical result as compared to a test conducted using the other assessment tools. This indicates further that the system is





reliable to use in determining the dominant intelligence of the student. Likewise, because the system is automated and is deployed as a web application, it has an edge over the other assessment tools in terms of accessibility and efficiency of use.

2. Based on the perception of the respondents on the validity of the system's output, the system is very satisfactory in terms of determining the most dominant intelligence of the student, in providing the list of courses suited to the student, in providing the study tips and in interpreting or providing an explanation of the system's output. This indicates that the respondents highly affirm the validity of the system's output.

3. Based on the perception of respondents from the Information and Communications Technology sector, the system is very satisfactory in all the six software quality characteristics as outlined by ISO 9126 which include functionality, reliability, usability, efficiency, maintenance and portability. The respondents affirmed the software quality of the system as being within the ISO 9126 standard.

### **Recommendations**

Considering the findings of the study and the conclusions drawn, the following recommendations are hereby presented:

1. It is highly recommended that every secondary and tertiary educational institution with a website should have this system installed as part of their sites. For secondary schools, the system will be a valuable alternative in terms of career guidance to their students. As for the tertiary institutions, the result of the system may be used to guide their enrollees on the possible courses to be recommended or made mandatory for incoming freshmen.

2. It is recommended for future researchers to make a reliability test of the system in terms of the success rates of the students by conducting a study of those who had taken a multiple intelligence test and had taken the course as suggested by the system.

3. Education institutions that had the system installed on their server may extend the system to control certain aspects of the system such as:

- a) Addition and update of course titles because the host institution may have additional course offerings;
- b) Allow the staff in-charge of guidance and counseling or similar personnel to gain access to the result of the system's evaluation such as in cases wherein the person in-charge of such a task would not want to be burdened working with the printed result of the evaluation.

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## The Use Of Audio And Visual Cues Of Audience And Their Effects On Persuasive Writing

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### Abstract

The researcher in this study attempted to discover whether the inclusion of audio and visual cues of audience in the writing context will lead to an increase in the quality of persuasive essays among English 2 students of the Mindanao State University (MSU) in Marawi City, Philippines. Specifically, the study focused on finding the mean difference between the pretest and the posttest results of the respondents' quality of persuasive writing under three conditions, namely: unspecified audience, specified audience without audio and visual cues, and specified audience with audio and visual cues.

To measure the quality of student's writing, a holistic score was obtained using a Focused Holistic Scoring Guide. The score reflected the quality of the test in terms of communication effectiveness and persuasiveness.

The findings of the study revealed that the quality of the students' persuasive essays has significantly improved when the writing task was presented with visual and audio cues of audience. The results manifested some positive effect of visual and audio cues when used as instructional aids or meditative tools in writing classes.

Keywords: persuasive writing, audience cues, visual and audio cues, MSU Marawi English 2 students

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## Introduction

Studies on nonverbal communication have reported that visual and audio cues such as facial and vocal expressions play a significant role in establishing interpersonal relationships. Nonverbal cues can be used to elaborate on verbal messages to reinforce the information sent when trying to achieve communicative goals. So important are these natural accompaniments to speech that should there be a conflict between nonverbal means and the verbal (a problem known as cross-modality), it is the former that is considered more reliable (Bateson, 1972; cited in Bauman, 1974). Furthermore, Brown (1994) has emphasized that although language is one of the primary means of understanding and feeling what another person is going through, nonverbal communication facilitates the process of knowing the cognitive and affective state of other people; thus, it must not be overlooked.

In the field of writing research, the use of audio and visual cues of audience may be one way of heightening audience awareness among writers. Audience awareness, or the ability of a person to think about how others think as he engages in either writing or speaking that is aimed at those persons, is assumed to have an integral role in written communication. To be aware that one is writing not for oneself but for an audience of readers who have multiple perspectives and often considerable skepticism toward the writer's perspective, is considered as one of the hallmarks of critical thinking and good academic writing (Napierkowski, 1999). As writing scholars and researchers have devoted considerable efforts to better understand the roles of audience in student writing since 1970's (Beach, 2007), audience awareness has been treated as a significant hallmark or index of a skilled writer. During the writing process, the skilled writers construct mental representations of their readers' knowledge, make social inferences about their readers, and bridge the potential communication gaps. Writers with strong audience awareness tend to match their communication goals with their intended audience by writing more critically and revising more often. An example of this is when a writer introduces some difficult terminologies for the first time in a text and the writer decides to define the term and gives examples so that his reader would be able to understand the term he uses. Such decision where the writer attempts to fill in possible communication gaps demonstrates how audience awareness can help a writer better tailor his writing. Generally, proficiency for some kinds of writing, such as persuasive and expository writing depends, to a large degree, on one's ability to recognize certain characteristics of audience (Sypher and Russo, 2002; Browne, 1989; Beach, 2007; Napierkowski, 1999).

Taking the cue from the numerous writing - related problems among students that the researcher has experienced in her writing classes, the idea of looking into the possibility of improving students' writing by way of a multi-dimensional presentation of audience information on student's writing, she thought of acting on the intense interest that has been building up in her. With technological advances fueling more her interest, and inspired by her students' discernible enthusiasm when lessons are presented through multimedia devices in the classroom, the researcher finds it worth her effort to examine the impact of visual and audio cues of audience on students' writing in the classroom. By conducting this study, the researcher hopes to be able to address at least some of the writing problems that teachers have been facing. The results of the inquiry are offered as contribution to efforts to reshape learning environments and teaching writing strategies.

## Statement of the Problems

The study is concerned with the use of audio and visual cues of audience and their effects on the quality of the student's persuasive essay. Specifically, the study aimed to answer the following questions:

1. Is there any mean difference between the pretest and the posttest results of the respondents' quality of persuasive writing under the following conditions:
  - 1.1 Unspecified audience
  - 1.2 Specified audience without face and voice; and
  - 1.3 Specified audience with face and voice?
2. Is there any mean difference in the posttest results of the respondents' quality of persuasive writing under the following conditions:
  - 2.1 Unspecified audience versus specified audience without face and voice;
  - 2.2 Specified audience without face and voice versus specified audience with face and voice; and
  - 2.3 Specified audience with face and voice versus unspecified audience?



## Hypotheses

1. There is no mean difference between the pretest and the posttest results of the respondents' quality of persuasive writing under the following conditions:
  - a. Unspecified audience;
  - b. Specified audience without face and voice; and
  - c. Specified audience with face and voice.
2. There is no mean difference between the posttest results of the respondents' quality of persuasive writing under the following conditions:
  - a. Unspecified audience versus specified audience without face and voice;
  - b. Specified audience without face and voice versus specified audience with face and voice;
  - c. Specified audience with face and voice versus unspecified audience.

## Methodology

To address the research questions, the study used Grothjan's analytical-nomological design (Nunan, 2009). The data in the study were collected through an experiment which yielded quantitative type of data and were subjected to statistical analysis. The study used a pretest-posttest control group which involves a random selection of subjects from the population as well as a random assignment of subjects to the three posttest conditions. This design was used in this study in order to find the difference between the pretest and the posttest scores of the respondents and to measure any improvement through the respondents' gained scores in the posttest.

Two hundred forty four English 2 students of the Mindanao State University served as respondents of the study. English 2 students were selected as the target population because English 2 is the basic and ideally the first writing course freshmen students of MSU have to take before they can proceed to higher English writing courses. English 2 students are required to write discourse papers, and at the end of the semester, to submit a term paper as their final requirement. Most of the writing assignments in the English 2 classes, regardless of the type of writing, require students to demonstrate audience awareness to come up with an effective writing output. The researcher has handled English 2 for eleven years now.

The study used two administration sessions – one for the pretest and another one for the posttest. The pretest was given two months after the opening of classes to ensure that the respondents were already introduced to paragraph writing and forms of discourse in their respective English 2 classes. During the pretest session, all students were asked to respond to the writing topic independently and all of them responded to the writing topic with no assigned audience. This session started by giving the students a general introduction of the writing activity. Each student was given a writing sheet with an attached writing prompt. They were given 55 minutes to write on the writing sheet the pretest essay according to the topic and instructions given. After they finished writing their essay, the students answered the personal profile questionnaire.

Two weeks after the pretest, the posttest was administered. This time, each English 2 section was randomly assigned to the three posttest conditions: (a) unspecified audience, (b) specified audience without face and voice, and (c) specified audience with face and voice. Specifically, in the unspecified audience condition, the students were simply instructed to "write as persuasively as you can an essay that states your position on this issue."

In the specified audience without face and voice group, the details of audience information were provided in text format using the third person perspective. The students were given this information:

"Dr. Ivy M. Delima is a dentist by profession. She is 31 years old, married, and has a three- year- old son. Lately, she and her husband have gone over again and again the issue of what should be the size of their family. At her age, Dr. Delima does not want any more kids; her husband, however, always floats the idea of having another baby in the family. Are smaller families better than larger ones?"

The students in this group were then instructed to persuade Dr. Ivy Delima by writing an essay that states their position on the issue, and to use specific reasons and examples to support their position.



In the specified audience with face and voice condition, the audience information was presented with a video clip of the audience conveying information from the first person perspective. The video clip ran for about 50 seconds and it gave this information:

“Hello! I am Dr. Ivy Delima. I am a dentist by profession. I’m 31 years old, married, and I have only one son who is now three years old. Lately, my husband and I have gone over again and again the issue on family size. Personally, I don’t want any more kids. However, my husband floats the idea now and then of having another baby. Could you help me decide which family size is better? Are smaller families better than larger ones? Why or why not?”

After watching the video, the students were instructed to plan and write an essay in response to Dr. Ivy Delima and to provide supporting details, reasons and examples that would make their position on the issue convincing to her. Following the procedure used in the pretest, the students completed the posttest writing task.

The researcher paired the pretest and posttest essay of each respondent. A total of 488 essays of the pretest and the posttest were rated holistically using the NAEP Grade 12 Persuasive Scoring Guide. Each essay was assigned a holistic score ranging from 1 (Unsatisfactory Response) to 6 (Excellent Response). The holistic score reflected the quality of the test in terms of communication effectiveness and persuasiveness.

## Results and Discussion

*Unspecified Audience Group.* Through a t- test, the means of the pretest and posttest results in terms of holistic scores of the respondents under the unspecified audience group were compared. The comparison resulted to a t-value of .217 with a significance value of .829. The result disclosed that there is no significant mean difference between the pretest and the posttest results of the respondents’ quality of persuasive writing under the unspecified audience group, and thus the null hypothesis is accepted.

*Specified Audience without Face and Voice Group.* There is no significant mean difference found between the pretest and the posttest results of the respondents’ quality of persuasive writing under the specified audience without face and voice group as revealed through a t-test that compared their holistic scores in the pretest and the posttest. The comparison revealed a t-value of -.555 with a significance value of .581. The group has a pretest mean of 2.69 and a posttest mean of 2.73. Despite a short increase in the respondents mean of holistic scores in the posttest, the data suggested that the respondents’ quality of persuasive writing did not significantly improve in the posttest where audience information was presented to the respondents in a text format using the third person point of view. The null hypothesis is accepted.

*Specified Audience with Face and Voice.* Results of the t-test revealed that there is a significant mean difference between the pretest and the posttest results of the respondents’ quality of persuasive writing under the specified audience with face and voice group. The holistic scores had a computed t-value of -2.102 with a significance value of .038. This significant mean difference on the respondents’ quality of persuasive writing under the specified audience with face and voice group is indicative of a positive effect of integrating the visual and audio cues of the target audience in giving instructions for persuasive writing. The null hypothesis is rejected.

In comparing the posttest results of the respondents between the unspecified audience and the specified audience without face and voice, the comparison of means gave a t- value of -2.474 and a significance value of .014 which means that there is a significant mean difference between the qualities of persuasive writing from these two groups. As shown in Table 1, the specified audience without face and voice group has a posttest result mean of 2.73 which is significantly higher compared to the 2.51 posttest result mean of the unspecified audience group. Their mean difference indicates that the quality of persuasive writing under the specified audience without face and voice group during the posttest has improved more compared to the quality of writing of the respondents under the unspecified audience group. In light of the foregoing result, the null hypothesis is rejected.

Table 1. Mean Difference between the post test results of the respondents under the unspecified audience and the specified audience without face and voice

| Group                                     | Mean | Std. Deviation | t-value | Significance | Remarks     | Action Taken |
|-------------------------------------------|------|----------------|---------|--------------|-------------|--------------|
| Unspecified Audience                      | 2.51 | .531           | -2.474  | .014         | Significant | Reject Ho    |
| Specified Audience without face and voice | 2.73 | .551           |         |              |             |              |

Legend





- If significance value is less than or equal to 0.05, mean difference is SIGNIFICANT
- If significance value is less than or equal to 0.01, mean difference is HIGHLY SIGNIFICANT
- If significance value is greater than 0.05, mean difference is NOT SIGNIFICANT

On the other hand, when the posttest results of the respondents under the specified audience without face and voice and the specified audience with face and voice groups were compared, the t- test results revealed that there is no significant mean difference on the holistic scores of the respondents from the two groups. Table 2 shows that the specified audience without face and voice group has a posttest result mean of 2.73 , just .03 lower than the 2.76 posttest result mean of the specified audience with face and voice group. Their mean difference as supported by the t-test results bared no significant mean difference on the holistic scores of the respondents from the two groups. In other words, the persuasive writing made by the respondents from these two groups, based on the posttest results, have almost the same quality. The null hypothesis is therefore accepted. What emerges as a salient factor is, there was a specified audience in both instances. Whether such audience was with face and voice or without face and voice did not make a significant difference.

Table 2. Mean Difference between the post test results of the respondents under the specified audience without face and voice and the specified audience with face and voice

| Group                                     | Mean | Std. Deviation | t-value | Significance | Remarks         | Action Taken |
|-------------------------------------------|------|----------------|---------|--------------|-----------------|--------------|
| Specified Audience without face and voice | 2.73 | .551           | -.376   | .707         | Not Significant | Accept Ho    |
| Specified Audience with face and voice    | 2.76 | .786           |         |              |                 |              |

Legend

- If significance value is less than or equal to 0.05, mean difference is SIGNIFICANT
- If significance value is less than or equal to 0.01, mean difference is HIGHLY SIGNIFICANT
- If significance value is greater than 0.05, mean difference is NOT SIGNIFICANT

For the specified audience with face and voice versus unspecified audience, the unspecified audience group has a mean of 2.51 while the specified audience with face and voice group has a mean of 2.76. With a t- value of -2.489 and a significance value of .014, as shown in Table 3, results of the t-test showed a significant mean difference between the holistic scores of the respondents from the two groups. This means that respondents from the specified audience with face and voice group produced persuasive writings that are far better than the ones produced by the respondents under the unspecified audience group. Student writers are more responsive and stimulated when presented with a specified audience with face and voice. The latter is a source of contextual cues which function as mental prods.

Table 3. Mean Difference between the post test results of the respondents under the specified audience with face and voice and the unspecified audience

| Group                                  | Mean | Std. Deviation | t-value | Significance | Remarks     | Action Taken |
|----------------------------------------|------|----------------|---------|--------------|-------------|--------------|
| Specified Audience with face and voice | 2.76 | .786           | -2.489  | .014         | Significant | Reject Ho    |
| Unspecified Audience                   | 2.51 | .531           |         |              |             |              |

Legend

- If significance value is less than or equal to 0.05, mean difference is SIGNIFICANT
- If significance value is less than or equal to 0.01, mean difference is HIGHLY SIGNIFICANT
- If significance value is greater than 0.05, mean difference is NOT SIGNIFICANT

## Conclusions

Adding visual and audio cues of audience to the writing contexts in English 2 classes will help the student writers strengthen their abilities to accommodate the characteristics of their audience and become effective writers. The significant mean difference between the pretest and the posttest results of the respondents under the specified audience with face and voice implies that the inclusion of the visual and audio cues of audience has increased the quality of persuasive writing of the respondents. Writing teachers should see this as a challenge or opportunity to provide the scaffolding or support in connection with the zone of proximal development (ZPD), the most well-known of Vygotsky's interactionist theory. As has been explained by exponents of the theory, ZPD is a term that captures the dynamics of development in the joint context created by interaction when one of the interactants (the learner) is helped by the other. It is the difference between what a person can do on his own and what he can accomplish with the support of a caretaker or teacher. Participants in the interaction construct a zone of proximal development in which they can perform above their level of individual competence and as internalization goes, with the help of mediating tools at their disposal, for example, the teacher or some expert, learners can transcend their individual capability. The ultimate result would be that participants can perform better in interaction than





under a different circumstance and then after the interaction what occurred between them and their superior performance can become an object of reflection.

The fact that majority of the respondents' received a holistic score of 3 (uneven response) for their persuasive essays in both the pretest and the posttest implies that there is a need to enhance their persuasive writing skills, much more their linguistic ability to be able to express their points of view on a given issue. Majority of the respondents in this study used inappropriate word choices and their errors in grammar and mechanics such as incorrect punctuation, misuse of prepositions, ambiguous pronouns, misspelled words, as well as errors in subject-verb agreement, sometimes interfered with understanding; in other words, classified as global (Burt, Dulay and Krashen, 1982). These manifestations – i.e. organization problems, lack of coherence and polish or writing refinement – are characteristic of students suffering from some learning disabilities (Firkins et al., 2005, McAlister et al., 1999). Most of the time, they comprehend much more than they are able to demonstrate in writing. This is more or less typical for beginners or early intermediate type of English language learners. Comprehension, as pointed out by Krashen and Terrel (1982; 1983; 1991; cited in Brown, 1994) precedes production. In this view, the researcher considered it very important for students to be taught with critical thinking skills just as they should also be taught with grammar skills.

### Recommendations

1. Teachers of English 2 classes in the Mindanao State University in Marawi City are encouraged to create functional virtual audiences as part of their writing instructions for every student writing activity. With a belief that visual and audio cues of audience facilitate better and effective writing, teachers should be creative in the classroom by helping students reach their target readers and accommodate their needs through a provision of the target audience visual and audio cues. The cues can be a powerful tool that would fuel the students' imaginations and critical thinking skills.
2. School administrators should provide multimedia gadgets like overhead projectors and computers in every writing classroom so that teachers could easily show/ play their created virtual audiences to students in their writing classrooms.
3. Given that writing is developmental in nature, teachers should invest on providing writing exercises that give students the opportunity to write to actual audiences, apart from the teacher. The developmental nature of writing can be a good basis for teachers to enhance students' writing by letting them experience the writing process in a meaningful way such as having target audiences respond to audience writing.
4. In connection to the 3rd recommendation, it is further suggested that peer evaluation of essays or compositions be considered in English 2 classes. This will give students the opportunity to immediately see their peers' reactions to their own writing. In this way, students would have better chances of knowing what works and what does not likely work to their target audience and thus, enhance their writing the next time by further considering the needs of their audience.
5. English 2 students should be exposed more to persuasive writing models and exercises to enhance their persuasive writing skills, given the fact that majority of the respondents' main problem in their persuasive writing is their inability to support their stance or point of views. Their writing is no more than a well-written beginning or introduction, meaning there is no development. The researcher agrees with Kogen in Loffman (2005), who was quoted saying that "explicit statements are needed to relate supports to basic propositions." If students will not be taught to give a generalization in order to prove their point, they would likely fail to do so and thus write poor papers.
6. Review on mechanics such as spelling and punctuation should also be considered in all English 2 classes to address errors on mechanics as reflected in majority of the respondents' essays. Problems on mechanics are indeed prevalent in most of students writing. In this study, majority of the respondents' problems in their writing have to do with mechanics, sentence structures, wrong choice of words and style and failure to support their points of view or giving of unelaborated reasons. Such problems yield proof that the respondents are struggling with their English language skills especially in terms of their comprehension and production of the English language.
7. Since holistic scoring as used in this study does not provide a detailed profile of the different facets of the respondents' writing, future research can be conducted using a different evaluation procedure that may give more detailed judgments on the quality of students writing.



8. Further studies in relation to the use of visual and audio cues of audience to students' writing may be conducted.
9. Using the principle of contrastive rhetoric, future studies that would focus on comparing the rhetorical styles as well as the audience adaptation abilities of the different cultural groups in the University where respondents would write on their own mother tongue might be an interesting and a promising study in the field of writing and rhetoric.

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## **Aptitude, Attitude, And Motivation In English Language Learning Of College Freshmen**

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### **Abstract**

The research was conducted to determine the roles of aptitude, attitude and motivation in English Language Learning of Freshman College students in Isabela State University – Cauayan Campus.

This study is focused on the freshman students who are taking up four – year bachelor's degree courses. The descriptive - correlational method of research was used in the study and the tools utilized to gather data from the respondents were the questionnaire, the Attitude/Motivation Test Battery(A/MTB), and the English Proficiency Test from CHED, documentary analysis on the result of Scholastic Abilities Test for Adults ( SATA ) and unstructured interview were used to gather needed information for the study. The statistical treatments used were Frequency and Tally Percent, Mean, Weighted Mean, Standard Deviation, One Way Analysis of Variance, Tamhane's T2 post hoc test, Chi – square Test for Independence and Kendall's Tau-b Rank Correlation Coefficient.

The study revealed that majority of the respondents are of average age for college freshman and Ilocano – speaking; they are taking up Bachelor of Science in Business Administration and are predominantly female.. It also showed that the students are not well inclined in learning the English language although majority of the respondents have average proficiency level. Majority of the respondents have average English Proficiency Level while aptitude, attitude and motivation of the respondents in English do not vary when grouped according to their age, sex and languages spoken at home. The only aspect that shows difference is their course. Among all the personal status in the profile of the respondents, only course significantly affects their English Proficiency Level Hence, to make students more confident in the use of language, opportunities for enhancing English proficiency like the use of English in communicating should be strengthened in the school and home.

Key words: Aptitude, Attitude, Motivation, English Language Learning, English Proficiency

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## Introduction

English is a living language. It changes from time to time. Keeping updated and gaining proficiency in it keeps the learner abreast to the things that are happening in this fast changing world. The challenge to become globally competitive in one's communication using the English language is a challenge to all – more to the bilingual speakers where they have to master two languages: their native language and their second language. It is evident that there has been a prominent shift within the field of language teaching and learning over the last twenty years with a greater emphasis being put on the learning of the learners who are the center of the educative process.

The emergence of English as Lingua Franca is apparent in the Philippine society where English plays a defining role in educational, career, social, cultural and economic domain. The role of English in the Philippines is quite important as it is in many developing countries. Despite such inextricable links the mastery of skills in English has not yet been so successful because of the decline in students past performance in English. In fact, Mallinlin (1992), observed that it is too depressing that students are unskilled in using English as a medium of communication. Some students can barely construct an effective sentence be it written or oral. The Commission on Higher Education (CHED) is aware of the worsening conditions of the English language competency in the country that is why it introduced the subject English Plus to universities and colleges nationwide to address the need to strengthen the English language competence of college students.

In different Universities in the country, there is a great effort to prepare freshman students to be globally competitive especially in their communicative skills in English. It is recognized that the language would serve as a vehicle for students to achieve their dreams. It is through communicating thoughts and ideas effectively in English that they are a step closer in improving their performance in other disciplines.

However, the researcher observes that in spite of these efforts, students do not perform well in English subjects as they are expected to. These are shown in the results of the assessment of English – Plus in Isabela State University – Cauayan Campus for Academic Year 2007 - 2008 conducted by the Asian Psychological Services and Assessment Corporation (APSA), test results showed that out of the 668 students who took the English Plus subject 303 or 45% did not meet the standards of English proficiency level, 364 or 54% is progressing towards standards, one or 0.15% is proficient and nobody reached the highly proficient level. This scenario is alarming among English teachers for they are accountable for the lack of communicative competence of their students thus, this research was conducted to find out if a relationship exists in the student's aptitude, attitude and motivation in their ability to learn the English language.

## Statement Of Objectives/Problems

This study attempted to find out the roles of aptitude, attitude and motivation in English Language Learning of Freshman College students. Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in terms of age, sex, languages spoken at home and course
2. What is the aptitude in English of Freshman Students in Isabela State University – Cauayan Campus?
3. What are the attitudes of the students toward learning English?
4. What are the students' levels of motivation in English?
5. What is the level of English proficiency of the respondents?
6. Is there a significant relationship between the respondents' profile and English proficiency level of students?
7. Is there a significant relationship among aptitude, attitude and motivation in English language learning and the English Proficiency Level of the respondents?

## *Theoretical Framework and Research Paradigm*

The influence of aptitude, attitude and motivation variables was first examined in the study conducted by Gardner and Lambert(1972), their study brought out attention to the issue of how these variables influence both the level of proficiency attained and the rate of success in learning second language. Their pioneering work led to the construction of a socio – psychological theory of second or foreign language learning, according to which the learner's level of success in a second language is determined by the extent to which they are psychologically prepared to adopt various aspects of behavior which characterize members of the target linguistic cultural group.



In this study, the researcher attempted to find the relationship of aptitude, attitude and motivation in English language learning of college freshmen in Isabela State University – Cauayan Campus. The flow of the study is shown in Figure 1.

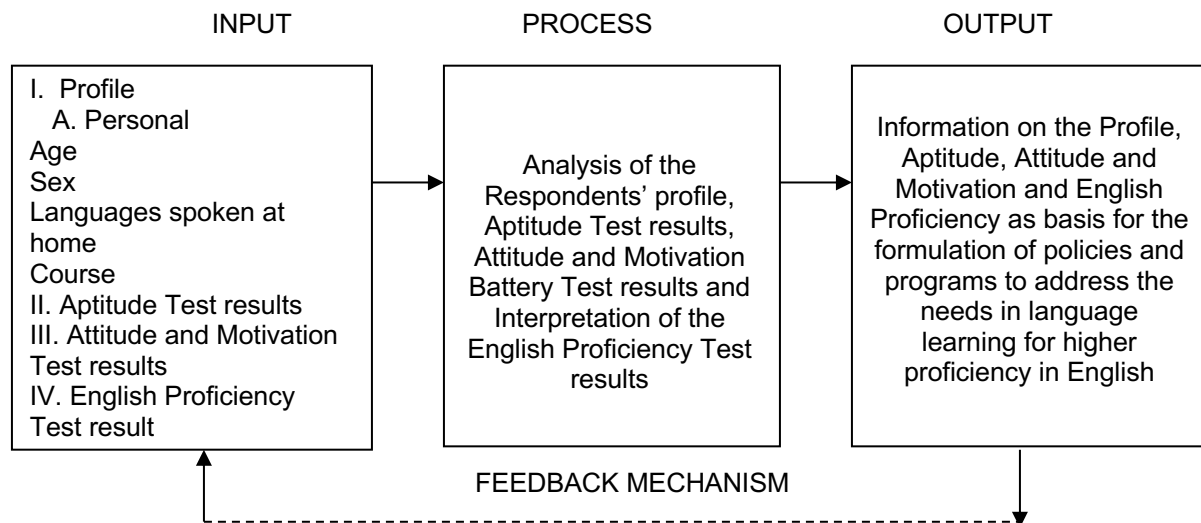


Figure 1, the Research Paradigm

## Methodology

### Research Design

The descriptive - co relational method of research was employed to achieve the purpose of this study. The writer considers this method appropriate since this study attempted to measure a number of variables and to find which variables are related in second language acquisition and English proficiency.

### Selection and Description of Respondents

There were 1,540 students who are enrolled and taking up four – year bachelor's degree courses and from the population, a sample was taken. The respondents were chosen in a stratified random sampling technique and out of the 1,540 students a sample of 320 respondents coming from different four – year programs..

### Data Gathering Instruments

The researcher utilized questionnaires, documentary analysis of the results of Scholastic Abilities for Adults (SATA), Attitude/Motivation Test Battery (AMTB) by R.C. Gardner and CHED Region 02 English Proficiency Test to draw needed information for the study.

### Statistical Treatment

The researcher used the Frequency and Tally Percent, Mean, Weighted Mean, Standard Deviation, One-Way Analysis of Variance, Tamhane's T2 , Chi-square Test of Independence and Kendall's Tau-b rank correlation coefficient in analyzing the gathered data.



## Results And Discussions

Table 1. *Frequency and Percent Distribution of the Respondents According to Age*

| Age   | Frequency | Percent |
|-------|-----------|---------|
| 15    | 6         | 1.88    |
| 16    | 135       | 42.19   |
| 17    | 104       | 32.50   |
| 18    | 32        | 10.00   |
| 19    | 23        | 7.19    |
| 20    | 14        | 4.38    |
| 21    | 5         | 1.56    |
| 23    | 1         | 0.31    |
| Total | 320       | 100     |

Table 1 shows the frequency and percent distribution of student- respondents by age .The data revealed that the age of most of the respondents is 16 or 42.19 percent. It also revealed that majority of the respondents are of average age for college freshman, for student's age for first year college in the Philippines is 16 or 17.

Table 2. *Frequency and Percent Distribution of the Respondents According to Sex*

| Sex    | Frequency | Percent |
|--------|-----------|---------|
| Male   | 139       | 43.44   |
| Female | 181       | 56.56   |
| Total  | 320       | 100     |

Data indicate that freshman students of Isabela State University – Cauayan Campus are predominantly female. This conforms with the results of the survey made by the Department of Education in 2005 that senior girls are more inclined to go to college than senior boys (58% versus 52%)

Table 3. *Frequency and Percent Distribution of the Respondents According to Languages Spoken at Home*

| Languages Spoken at Home     | Frequency | Percent |
|------------------------------|-----------|---------|
| Ilocano                      | 124       | 38.75   |
| Tagalog                      | 74        | 23.13   |
| Ibanag                       | 5         | 1.56    |
| Gaddang                      | 1         | 0.31    |
| Ilocano and Tagalog          | 104       | 32.50   |
| Tagalog and Ibanag           | 3         | 0.94    |
| Tagalog and Yogad            | 1         | 0.31    |
| Ilocano, Tagalog and Ibanag  | 4         | 1.25    |
| Ilocano, Tagalog and Gaddang | 1         | 0.31    |
| Tagalog and Itawes           | 1         | 0.31    |
| Ilocano, Tagalog and Itawes  | 1         | 0.31    |
| Bisaya                       | 1         | 0.31    |
| Total                        | 320       | 100     |

Table 3 illustrates the frequency and percent distribution of respondents based on the dialect commonly spoken at home. The result is similar with what Anduyan (1999), where 72.22 percent of his respondents who are freshman students of Angadanan Agro-Industrial College in Angadanan, Isabela also speak Ilocano.



Table 4. *Frequency and Percentage Distribution of the Respondents According to Course*

| Course                                                 | Frequency | Percentage |
|--------------------------------------------------------|-----------|------------|
| Bachelor of Arts                                       | 19        | 5.94       |
| Bachelor of Agricultural Technology                    | 17        | 5.31       |
| Bachelor of Elementary Education                       | 17        | 5.31       |
| Bachelor of Science in Business Administration         | 73        | 22.81      |
| Bachelor of Science in Computer Science                | 13        | 4.06       |
| Bachelor of Science in Criminology                     | 58        | 18.13      |
| Bachelor of Secondary Education                        | 17        | 5.31       |
| Bachelor of Science in Entrepreneurship                | 29        | 9.06       |
| Bachelor of Science in Hotel and Restaurant Management | 32        | 10.00      |
| Bachelor of Science in Information Technology          | 45        | 14.06      |
| Total                                                  | 320       | 100        |

The table shows that majority of the students are taking up Bachelor of Science in Business Administration based from the unstructured interview, the respondents who are taking up Bachelor of Science in Business Administration would like to start their own business someday for they find Cauayan City as a feasible place to start a business because of its high commercial value. These first three courses with the highest percentage of enrollees also belong to the list of Commission on Higher Education (CHED) in 2010 top sought-after bachelor degrees/courses in the Philippines today.

Table 5. *Frequency and Percent Distribution of the Respondents According to their Aptitude*

| Aptitude                 | Frequency | Percent |
|--------------------------|-----------|---------|
| Average<br>90 – 110      | 8         | 2.5     |
| Below Average<br>80 – 89 | 40        | 12.5    |
| Poor<br>70 – 79          | 184       | 57.5    |
| Very Poor<br><70         | 88        | 27.5    |
| Total                    | 320       | 100     |

In terms of the aptitude of the respondents, results showed that out of 320 respondents, 184 (57.5%) were poor, 88 (27.5%) were very poor and 40 (12.5%) were below average. The data from the table reveal that most students are not inclined in English and it confirms the observation that our students' ability in English has been dramatically declining over the years. This is also observed in the results of the National Achievement Tests in school year 2004-2005 which showed how poorly public high schools fare in English. Only 6.6% of senior high school students in public schools have a mastery of English, with 49% at near mastery level, and 44% with no mastery.





**Table 6. *Weighted Mean Distribution of the Students' Attitudes toward Learning English***

| Attitudes of Students toward Learning English                                                                         | Mean        | Verbal Description              |
|-----------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------|
| 1. I really have much interest in my English class.                                                                   | 3.93        | Satisfactorily Favorable        |
| 2. Most native English speakers are so friendly and easy to get along with, we are fortunate to have them as friends. | 3.36        | Favorable                       |
| 3. Learning English is really great.                                                                                  | 4.28        | Satisfactorily Favorable        |
| 4. Studying foreign languages is enjoyable.                                                                           | 4.63        | Highly Favorable                |
| 5. Native English speakers have much to be proud about because they have given the world much of value.               | 4.64        | Highly Favorable                |
| 6. I like my English class so much; I look forward to studying more English in the future.                            | 4.17        | Satisfactorily Favorable        |
| 7. I plan to learn as much English as possible.                                                                       | 3.71        | Satisfactorily Favorable        |
| 8. To be honest, I really like my English class.                                                                      | 4.09        | Satisfactorily Favorable        |
| 9. I think that learning English is fun.                                                                              | 3.48        | Favorable                       |
| 10. I look forward to the time I spend in English class.                                                              | 4.33        | Satisfactorily Favorable        |
| 11. I enjoy meeting people who speak the English language.                                                            | 4.47        | Satisfactorily Favorable        |
| 12. I love learning English.                                                                                          | 3.57        | Satisfactorily Favorable        |
| 13. The more I get to know native English speakers, the more I like them.                                             | 3.70        | Satisfactorily Favorable        |
| 14. You can always trust native English speakers.                                                                     | 3.56        | Satisfactorily Favorable        |
| 15. I really enjoy learning English                                                                                   | 3.99        | Satisfactorily Favorable        |
| 16. Speaking English anywhere makes me feel confident.                                                                | 3.93        | Satisfactorily Favorable        |
| 17. I am really interested in the English language.                                                                   | 3.91        | Satisfactorily Favorable        |
| 18. Native English speakers are very sociable and kind.                                                               | 4.48        | Satisfactorily Favorable        |
| 19. I think my English class is interesting.                                                                          | 3.61        | Satisfactorily Favorable        |
| 20. I have a strong desire to know all aspects of English.                                                            | 4.32        | Satisfactorily Favorable        |
| 21. I make a point of trying to understand all the English I see and hear.                                            | 4.15        | Satisfactorily Favorable        |
| 22. I enjoy the activities I have in my English class.                                                                | 3.49        | Favorable                       |
| 23. I would rather spend more time in my English class and less in other classes.                                     | 4.62        | Highly Favorable                |
| 24. I check my assignments when I get them back from my English teacher.                                              | 3.79        | Satisfactorily Favorable        |
| 25. I keep up to date with English by working on it almost every day.                                                 | 3.94        | Satisfactorily Favorable        |
| <b>General Average</b>                                                                                                | <b>4.01</b> | <b>Satisfactorily Favorable</b> |

Majority of the attitudes of students toward learning English were rated “satisfactorily favorable” with a mean of 4.01. It can also be disclosed that attitudes of the students vary to interference of school, family or set of personal goals and objectives.



*Table 7. Weighted Mean Distribution of the Students' Motivations toward Learning English*

| Motivations of Students toward Learning English                                                                          | Mean | Verbal Description       |
|--------------------------------------------------------------------------------------------------------------------------|------|--------------------------|
| 1. I wish I could speak many foreign languages perfectly.                                                                | 4.08 | Satisfactorily Motivated |
| 2. My parents try to help me to learn English.                                                                           | 3.71 | Satisfactorily Motivated |
| 3. I look forward to going to class because my English teacher is good.                                                  | 4.49 | Satisfactorily Motivated |
| 4. Studying English is important because it will allow me to be more at ease with people who speak English.              | 4.04 | Satisfactorily Motivated |
| 5. Studying English is important because I will need it for my career                                                    | 3.98 | Satisfactorily Motivated |
| 6. I want to learn English so well that it will become natural to me.                                                    | 4.14 | Satisfactorily Motivated |
| 7. I feel very much at ease when I have to speak English.                                                                | 4.21 | Satisfactorily Motivated |
| 8. My parents feel that it is very important for me to learn English.                                                    | 4.03 | Satisfactorily Motivated |
| 9. My English teacher is better than any of my other teachers.                                                           | 4.02 | Satisfactorily Motivated |
| 10. Studying English is important because it will allow me to meet and converse with more and varied people.             | 3.86 | Satisfactorily Motivated |
| 11. Studying English is important because it will make me more educated.                                                 | 3.90 | Satisfactorily Motivated |
| 12. It doesn't bother me at all to speak English.                                                                        | 4.27 | Satisfactorily Motivated |
| 13. I wish I could have many native English speaking friends.                                                            | 3.80 | Satisfactorily Motivated |
| 14. If I were visiting a foreign country, I would like to be able to speak the language of the people                    | 3.45 | Motivated                |
| 15. I would really like to learn many foreign languages.                                                                 | 4.11 | Satisfactorily Motivated |
| 16. My parents feel that I should continue studying English all through school.                                          | 3.87 | Satisfactorily Motivated |
| 17. My parents feel that I should continue studying English all through school.                                          | 4.12 | Satisfactorily Motivated |
| 18. English is very important part of the school program.                                                                | 3.69 | Satisfactorily Motivated |
| 19. My parents have stressed the importance English will have for me when I leave school.                                | 4.13 | Satisfactorily Motivated |
| 20. Studying English is important because it will enable me to better understand and appreciate the English way of life. | 4.08 | Satisfactorily Motivated |
| 21. I want to learn English so well that it will become natural to me.                                                   | 4.18 | Satisfactorily Motivated |
| 22. My parents urge me to seek help from my teacher if I am having problems with my English.                             | 4.03 | Satisfactorily Motivated |
| 23. Studying English is important because it will be useful in getting a good job.                                       | 3.42 | Motivated                |
| 24. My parents are very interested in everything I do in my English class.                                               | 3.80 | Satisfactorily Motivated |
| 25. My parents encourage me to practice my English as much as possible.                                                  | 3.73 | Satisfactorily Motivated |
| General Average                                                                                                          | 3.96 | Satisfactorily Motivated |

As can be gleaned in the table, results showed that the overall mean in the motivations of students toward learning English was 3.96 with a verbal description of "satisfactorily motivated". These connote that mastering English as a key to getting a job is the least of their priorities.



**Table 8 Weighted Mean Distribution of the English Proficiency Level of Respondents according to Category**

| Areas Tested Item     | ENGLISH PROFICIENCY LEVEL |       |         |       |      |       | Mean Score | Interpretation |
|-----------------------|---------------------------|-------|---------|-------|------|-------|------------|----------------|
|                       | LOW                       |       | AVERAGE |       | HIGH |       |            |                |
|                       | F                         | %     | F       | %     | F    | %     |            |                |
| Stress/ Intonation    | 16                        | 5     | 283     | 88.44 | 21   | 6.56  | 5.17       | Average        |
| Verbal Ability        | 7                         | 2.19  | 304     | 95    | 9    | 2.81  | 5.39       | Average        |
| Spelling/Punctuation  | 10                        | 3.125 | 302     | 94.38 | 8    | 2.5   | 5.03       | Average        |
| Logical Organization  | 0                         | 0     | 282     | 88.13 | 38   | 11.87 | 5.69       | Average        |
| Reading Comprehension | 198                       | 61.88 | 121     | 37.81 | 1    | 0.31  | 6.77       | Low            |
| Identifying Error     | 241                       | 75.31 | 79      | 26.69 | 0    | 0     | 5.39       | Low            |
| Correct Usage         | 237                       | 74.06 | 71      | 22.19 | 12   | 3.75  | 6.52       | Low            |
| TOTAL                 | 97                        | 30.31 | 223     | 69.69 | 0    | 0     | 39.96      | Average        |

The table reveals the English Proficiency level of the respondents in the seven areas tested in the English Proficiency Test. Their scores were categorized as High, average or Low. The over – all mean scores are also presented and interpreted. The findings imply that students are less proficient in higher order skill in English as revealed by the mean scores in Reading Comprehension, Identifying Errors and Correct Usage.

**Table 9. Frequency and Percentage Distribution of the Respondents According to their English Proficiency**

| Level of English Proficiency | Frequency | Percentage |
|------------------------------|-----------|------------|
| High (67 – 100)              | 0         | 0          |
| Average (34 – 67)            | 223       | 69.69      |
| Low (1 – 33)                 | 97        | 30.31      |
| Total                        | 320       | 100        |

Out of 320 respondents, 223 or 69.69 percent were average in terms of level of English proficiency while 97 or 30.31 percent are poor. The forgoing results collaborate with the findings of Asio (2006), that the over – all competence and academic performance of freshman students of Isabela State University is in the average level. This is also strengthened by Abon (1998) when she looked into the English Proficiency level of freshman students as related to some variables. She highlighted that majority of her respondents got an average score in the English Proficiency test moreover; the study of Blas (2005), revealed that most students in Isabela State University – Cauayan Campus had limited English proficiency in the Pre – test and Post test of the English Proficiency Test. These findings indicate that the level of Proficiency of College Freshman students through the years has been stagnant despite the measures made by colleges and universities to uplift the quality of language teaching in their respective schools.

**Table 10. Test of Significant Relationship between the Respondent's Profile and their English Proficiency Level**

| Profile                    | Chi-Square Value | Significance Value | Decision  | Interpretation  |
|----------------------------|------------------|--------------------|-----------|-----------------|
| a. Age                     | 2.87             | 0.90               | Accept Ho | Not Significant |
| b. Sex                     | 0.21             | 0.65               | Accept Ho | Not Significant |
| c. Language Spoken at Home | 12.49            | 0.33               | Accept Ho | Not Significant |
| d. Course                  | 34.88            | 0.00006            | Reject Ho | Significant     |

As gleaned from the above table, the course has the only significant value as tested in the 0.05 level of significance. The  $\chi^2$  value is equal to 34.88 which imply that the English Proficiency Level of the students is greatly associated to their course. This connotes that the nature of the course has something to do with their English Proficiency Level. Since the hypotheses in most of the items are accepted, there is no significant relationship between the profile and the English Proficiency Level. Results revealed that their English proficiency



level is independent to their profile except for the course. This conforms to the results of the studies of Asio(2006) and Blas (2005).

Table 11. *Summary of the Relationship among English Proficiency, Attitude, Level of Motivation, and Aptitude of the Respondents*

|                          |                         | EPT   | Attitude | Motivation | Aptitude |
|--------------------------|-------------------------|-------|----------|------------|----------|
| English Proficiency Test | Correlation Coefficient | 1.000 |          |            |          |
|                          | Sig. (2-tailed)         | .     |          |            |          |
| Attitude                 | Correlation Coefficient | .055  | 1.000    |            |          |
|                          | Sig. (2-tailed)         | .233  | .        |            |          |
| Level of Motivation      | Correlation Coefficient | .016  | .611     | 1.000      |          |
|                          | Sig. (2-tailed)         | .725  | .000     | .          |          |
| Aptitude                 | Correlation Coefficient | -.356 | .038     | .081       | 1.000    |
|                          | Sig. (2-tailed)         | .000  | .392     | .066       | .        |

As gleaned from the table, a significant positive relationship exists between students' motivation and their attitude as revealed on their 0.611 value of correlation coefficient, while students' aptitude is negatively correlated to their English Proficiency Test as shown on their -0.356 value of correlation coefficient as tested in the 0.05 level of significance. This implies that highly motivated students are also those who have high attitude toward English. Conversely, highly proficient students got low aptitude scores, or vice versa. Thus it can be disclosed that attitude and motivation are better predictors of language proficiency than aptitude.

### Conclusions And Recommendations

In conclusion majority of the respondents are of average age for college freshman and Ilocano – speaking; they are taking up Bachelor of Science in Business Administration and are predominantly female. It also showed that the students are not well inclined in learning the English language although majority of the respondents have average proficiency level. Majority of the respondents have average English Proficiency Level while aptitude, attitude and motivation of the respondents in English do not vary when grouped according to their age, sex and languages spoken at home. The only aspect that shows difference is their course. Among all the personal status in the profile of the respondents, only course significantly affects their English Proficiency Level.

In the light of the foregoing findings and conclusions, the following recommendations are worth considering:

1. The English program of the University needs to be revisited to address present Level of English Proficiency of Students.
2. Activities in the classroom have to respond to the motivators of the learners with regard to second language acquisition.
3. Opportunities for enhancing English Proficiency should be strengthened in the school and home.
4. Speaking English at all times should be encouraged. Teachers and administrators should be model in this endeavor.

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## Online Test Analysis: Determining the Difficulty Level of Test Questions

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### Abstract

A thorough analysis of the examination result encompasses the purpose of assessing the learning progress of the students, the effectiveness of the educators as well as of the educational materials and methods. It provides an important framework for planning and decisions support.

The analysis of test result is a complicated task which takes time and effort, and so oftentimes is a neglected task. The purpose of this study is to create and evaluate an online test analyzing system that will allow users to enter the test results, determine the difficulty level of each test item as well as the overall difficulty level of the administered test, determine the mean, median and mode of the test scores and provide the marking of the examinee answers and test scores.

The validity and reliability of the system were evaluated based on the perception of ten (10) respondents from the Information and Communications Technology (ICT) sector, carefully selected thru judgment sampling.

Using the criteria set by ISO/IEC 9126 for software quality, it was found out that the overall mean value (M) and the standard deviation (SD) of the system as rated by the respondent is  $M=3.79$ ,  $SD=0.23$  and is designated as "Very Satisfactory". Likewise, in each of the ISO criterion, the respondents' perception of the system is "Very Satisfactory", proving that the system conforms to international standards and is therefore valid and reliable.

Key words: online test analysis, test difficulty, decision support

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## **Introduction**

Teachers are continually faced with the challenge of assessing the progress of students as well as their own effectiveness as teachers (Santos, 2007). The most common assessment method used is the conduct of an achievement test, with the encompassing purpose of assessing the improvement of the students, the instruction materials and method used as well as for curriculum planning.

A number of problems hinder classroom tests from being an accurate measure of the students' achievement. Sometimes, teachers developed tests that include questions measuring only knowledge of facts. The common complaint of students is that the test content did not reflect the materials presented. In addition, the questions are often ambiguous and unclear. According to Milton (1978), ambiguous questions constitute the major weakness in college tests. It often results when instructors put off writing test questions until the last minute. Likewise, teachers tend to develop test items that are used only once.

However the test item is constructed, the teachers have limited tools to use in order to measure the quality of their constructed test items. It is therefore a necessity that teachers should have a feedback mechanism on the quality of test items that they construct. Without such quality feedback, the skill level of item writers tends to remain low (Ross, 2005).

A test result contains indispensable information to provide pointers to teachers on the quality of their test items. It encompasses a very significant data that needs to be analyzed and interpreted. It serves as a feedback mechanism on the effectiveness of the educator in imparting knowledge. Test results also measures the level of absorption of the students to the presented learning materials. Educational decisions are often based on test results.

The Online Test Analyzer is undertaken to provide feedback to the educators on the difficulty level of their administered tests. The system will be able to evaluate the difficulty of the individual test questions as well as the overall test items. Through the system's evaluation, the user should take the necessary actions in order to hasten the learning process.

The system will also automate the process of checking the administered test using the provided answer key and the individual test answers of the students. It will promote efficiency and as a web application, the system will likewise be more accessible to most users.

## **Statement of Objectives**

This study aims to develop a web-based test analyzer as a tool to determine the difficulty level of the administered test and provide feedback to educators on the level of absorption to the learning method and materials used.

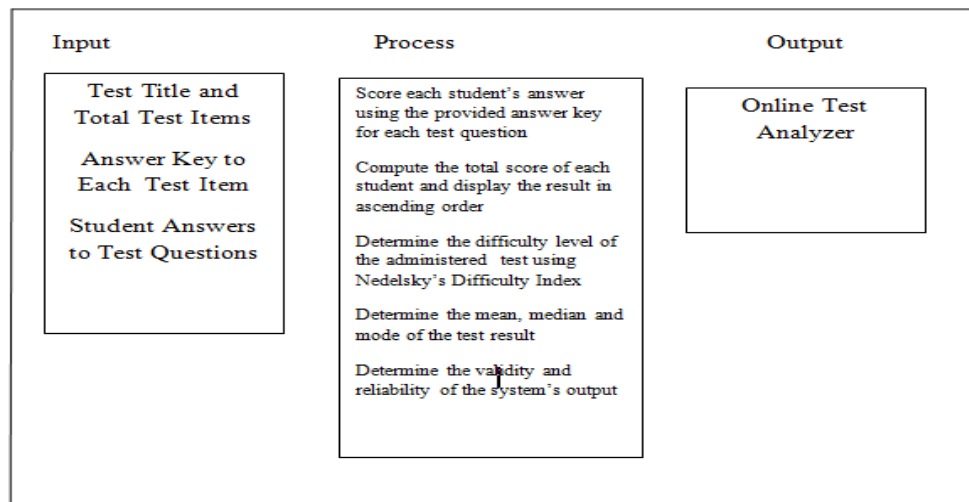
Specifically, this study is conducted with the following objectives:

1. Determine the total score of each student in the administered test;
2. Evaluate the difficulty level of each test question;
3. Evaluate the overall difficulty level of the administered test;
4. Evaluate the mean, median and mode of the test scores;
5. Evaluate the validity and reliability of the system's output through ISO 9126.





## Conceptual Framework



The figure above shows the essential components of the system. The test title identifies a particular test items to be analyzed. Each group of test question bound for analysis should also contain the total number of test items to analyzed as this is required in order for the system to generate the appropriate interface to the user. It will control how many test items or questions that to be filled out with the student's answer to each test item. The set of answer key represents the right answer to each test item. The answer to test questions represent the set of answers of individual students to the test items.

The system will process the system input by comparing the student's answer with the provided answer key for every test item. Consequently, the system will determine the total score of each student in the administered test. The system will then compute the difficulty level of the specified item using Nedelsky's Difficulty Index and the test difficulty level will be computed using the test's difficulty level suggested by Ahmann The system will also determine the mean, median and mode of the examinees' total scores.

The output of the system is the Online Test Analyzer, which will serve as a feedback mechanism for users on the quality of the constructed test items. It will also serve as a basis on the degree of absorption of the students to the presented materials and may be used as guidance in renovations to the teaching methods.

## Methodology

### *Project Description*

Online Test Analyzer is a web application, which allows its users to determine the difficulty level of an administered test. It will ultimately provide feedback on the quality of the constructed test items as well as the level of absorption of the students to the presented learning materials and methods.

The system will be installed on a web server, a computer that will serve web pages to the users when they access the application. As a web application, the users will access the system using their web browsers. The user interface component of the system is in the form of web pages. After the user signs in to the system, the user may analyze the test result by providing all the germane data required by the system for analysis. It includes the test title, the test's answer key and test point as well as the examinees' name and test answers. The user will not have to check the test papers prior to uploading the test answers as the system will perform an automated scoring of the student's test answers to the test items. The provided interface will be in a form of select buttons – either A, B, C or D. It will represent the student's answer to each test item. The system will then display the difficulty level of each test item as well as the test's overall difficulty level. The system will likewise determine the mean, median and the mode of the test scores. It will also allow the user to view the system's markings of the examinee's test answers and the total scores of each student to the given test.



Figure 2 shows the operations contained in the use of the Online Test Analyzer. The activity starts when the user accesses the system's web site and signs into the system. The user will then log in to the system using the submitted credentials in the signing activity stage.

To analyze the test result, the user will have to successfully pass thru the verification process by providing his/her username and password in the login process of the system. The user will then have four possible actions to take: enter a new test item, view test results, manage test results, or log off.

In entering the new test items for analysis, the user will input the test title to identify the specify test items. Teachers usually have several tests to be analyzed. Included in this stage, the user will also provide the system with the total number of test questions to be analyzed. The system will need this information in the succeeding activity.

The encode test results process will involve entering the individual student name together with all his/her test answers. This will promote efficiency to the user as he/she will simply select the proper button representing the student's answer to every test item.

Upon completion of the previous activity, the system will perform an analysis of the test results. The outcome of the analysis will then be displayed to be user. It may be printed or downloaded in portable data format (PDF) form. The system will also save the result of analysis to the system's database for future use. It is represented in the diagram by the Analysis Results data store.

The View menu allows the user to view saved data from the database per test titles.

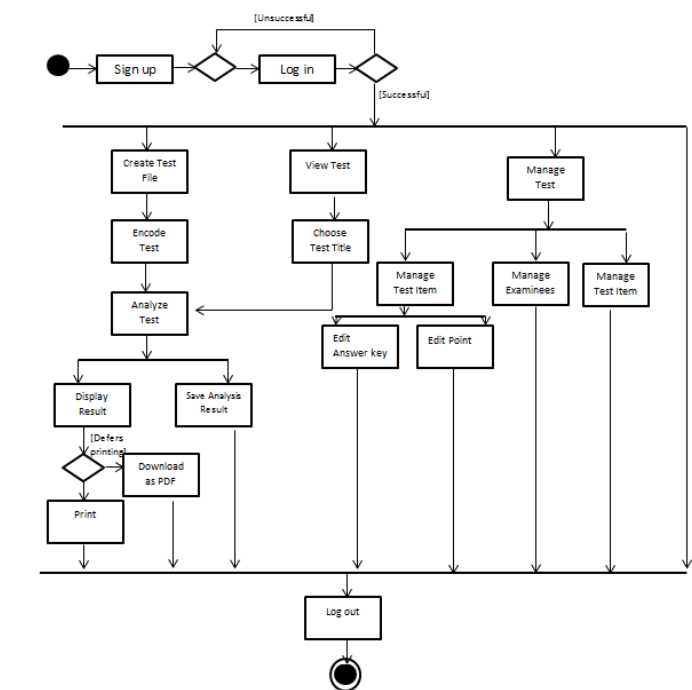


Figure 2. Activity Diagram of the System

The process Manage Test will enable the user to edit the test items, examinees and test titles or delete the previously-analyzed test items. This activity is optional as the system will keep all the records of all the test items that were analyzed. This is provided merely of a convenience to the user as the years of using the system may end up with so many test items. The Manage Test Item is performed when the user ascertains that he/she has data-entry errors and/or there are errors in the analysis result. The user selects the test title representing the



group of test items to be edited and make the necessary corrections. The system activity formally terminates when the user logs off from the system.

### *Project Development*

The researcher uses the Prototyping method to plan and develop the system. Prototyping produces an early; rapidly constructed working version of the proposed information system, called a prototype. Prototyping, which involves a repetitive sequence of analysis, design, modeling, and testing, is a common technique that can be used to design anything from a new home to a computer network. Prototyping allows users to examine a model that accurately represents system outputs, inputs, interfaces, and processes. Users can “test-drive” the model in a risk-free environment and either approve it or request changes. In some situations, the prototype evolves into the final version of the information system; in other cases, the prototype is intended only to validate user requirements and is discarded afterward (Cashman,2012).

The first phase of the development is planning. Here the systems requirement is analyzed and evaluated. The necessary hardware and software in order to develop the system is determined to ensure the appropriateness of the overall design of the system.

The second phase of the project development is the gathering of data. In this phase the proponent interviews and seeks the help of expert on statistics and programming. . Also in this phase the proponent designs the system's database, taking into account the principles of data integrity. The proposed system is developed using Code Igniter as the development framework, with PHP as the scripting language.

The third phase involves the development of the system, and the testing. The system is tested for possible errors and bugs. This is done to ensure that the software will function well and will provide reliable data.

Upon completion of the system, the proponent invited some users to test the system. To test the output of the system, a white box method was used. White box method ensures that the program logic is check and adheres to ISO/IEC 9126 standards.

### *Evaluation*

The system is evaluated in order to determine its validity. The system's functionality and output is tested by Information and Communication Technology (ICT) experts to evaluate whether the systems output are correct and reliable and whether the system conforms to the three ISO 9126 software quality characteristics. ISO9126-1 represents the latest (and ongoing) research into characterizing software for the purposes of software quality control, software quality assurance and software process improvement (SPI) of software product including Functionality, Accuracy Efficiency, Usability, Maintainability and Portability.

### *Data Processing and Statistical Treatment*

Microsoft Excel 2007 was utilized to create and record variables or data collected for this study. To determine the validity of the system, Mean is used to determine if the system attain its desired functionality.

For purposes of scoring the system, the following mean score were used.

- 3.26-4.0 Very Satisfactory
- 2.51-3.25 Satisfactory
- 1.76-2.50 Less Satisfactory
- 1.00-1.75 Not Satisfactory

The respondents, after evaluating each system's functionality, rate each questions in the questionnaire based on the provided answer scale. The answers generated from this questionnaire were tabulated to produce a set of result, which was interpreted to determine the system's conformance to ISO 9126 standards.



### Respondents of the Study

To determine the respondents for the evaluation of the system's output, the researcher used judgment sampling to select various Information and Communication Technology experts whose expert knowledge was based on their experiences and background in their own field.

## Results and Discussion

Table 1. *Result of the Evaluation of the System based on ISO 9126 Standards.*

| Question        | Mean | Description       | Standard Deviation |
|-----------------|------|-------------------|--------------------|
| Functionality   | 3.9  | Very Satisfactory | 0.16               |
| Reliability     | 3.65 | Very Satisfactory | 0.33               |
| Usability       | 3.84 | Very Satisfactory | 0.23               |
| Efficiency      | 3.83 | Very Satisfactory | 0.19               |
| Maintainability | 3.77 | Very Satisfactory | 0.23               |
| Portability     | 3.78 | Very Satisfactory | 0.23               |
| As a whole      | 3.79 | Very Satisfactory | 0.23               |

Table 1 shows the result of the system's evaluation regarding the system's conformance to ISO 9126 standards from 10 respondents. In its entirety, the respondents' evaluation of the system's output resulted to a mean value of  $M=3.79$ ,  $SD=0.23$ . This value is designated as "Very Satisfactory". This denotes that the evaluation given by 10 Information Technology professionals resulted to a "Very Satisfactory" result. The result implies that the overall functionality of the system is very satisfactory. This implies that the system is acceptable with no revisions as evaluated by different IT professionals.

The Functionality of the system got an overall mean score of 3.9 and  $SD=0.16$ . This result implies that the overall functionality of the system is "Very Satisfactory". These denotes that the system complies as a web application which makes it accessible from the client with internet access, the system functions accurately based on its stated functionality, the purpose and the content of the application is suited for use to test the difficulty of test questions and the system provides the necessary security mechanism to secure its information and data.

The Reliability of the system got an overall mean score of 3.65 and  $SD=0.33$  which means "Very Satisfactory". This means that the system handles incoming request from clients while maintaining performance level, ensure consistency and accuracy in the storage and retrieval of the application- related data and stored records of the previous evaluation on a per-user basis are readily accessible, there are consistency and accuracy in the user interface elements of the system, and the system is accurate in producing output.

The Usability of the system got an overall mean score of 3.84 and  $SD= 0.23$ . This denotes that the system is "Very Satisfactory" in terms of having instructions readily available to user, the web forms are logically organized and presented to the user in a well-defined manner, the necessary navigational interfaces are adequately provided to allow the user to move from one web page to the other and there is a consistency applied to the visual presentation and the placement of user interface elements.

The Efficiency of the system got an overall mean score of 3.83 and  $SD=0.19$  which means "Very Satisfactory". This means that the system has a reasonable response time in terms of processing the requested web page of the client, processes the result of the evaluation in a reasonable amount of time, retrieve and process the needed information on the database server and promptly delivering it to the client, and provides the necessary support for both the mouse and keyboard for navigational purposes on the web form.

The Maintainability of the system got an overall mean score of 3.77 and  $SD=0.23$  which is considered "Very Satisfactory". This means that the system provides a mechanism for analysis to determine the cause of an application error such as an error page, separates the application logic into three tiers – the presentation, business logic and data, to speed up software development and modifications, applied the process of normalization to the application's database which ensures consistency and reliability of data, and has a well-designed hierarchy of classes which is easier to follow, understand and maintain.



The Portability of the system got an overall mean score of 3.78 and SD=0.23 which means “Very Satisfactory”. This means that the system provides an automated deployment system, which eases the installation of the application, adaptable on different browsers, there is a database conformance which relates to portability of database used and the system has the ability to adapt to new operating environment.

### Conclusions

Based on the results and the accompanying discussion, the following conclusions were drawn:

1. In terms of the system's conformance to the stated design objectives, the rated value of the system's functionality is “Very Satisfactory”, reaffirming that the system complied with the stated objectives and is able to determine the difficulty level of each test item as well as the overall test questions. It likewise proved that the system is able to determine the mean, median and mode of the examinees' test scores as well as present the total score of each examinee.
2. Based on the perception of the respondents, the system is very effective in terms of handling incoming requests from numerous clients while maintaining the performance level. It also manifest consistency and accuracy in its user interface elements and in the storage and retrieval of the application's related data. The absence of error in the system's output is equally consistent. It is an indication that the respondents affirmed the reliability of the system.
3. Overall, the perception of the respondents to the conformance of the system with the ISO/IEC 9126 standard is “Very Satisfactory”. The respondents' positive outlook of the system's functionality, reliability, usability, efficiency, maintainability and portability is an affirmation of the system's validity and reliability.

### Recommendations

Based on the results, discussions and conclusions earlier presented, the following recommendation are hereby offered:

1. While the system could process most test types, future researchers may focus on extending the system to cover all test types. Probably, the only test types not covered by the system are point –based items which may include essay, laboratory/field experiment, problem-solving, activity, and the like. There is no standard offered yet for processing such items. It is recommended that these types of items should have a minimum score, probably zero (0) and a maximum score. There should also be a passing mark for the item and as long as the score is not below the passing mark, the answer for the item should be considered right. Otherwise, it should be marked wrong. The minimum, maximum and passing score should be provided by the user to the system. Applying this principle, the system may easily determine the item's difficulty level
2. It is recommended that educational institutions should have this type of application as part of their website. It would enable them to monitor their quality of education, the instructional materials, the faculty members and the progress of the students. The result of the system's analysis is invaluable in planning and decision-making. The system may likewise be extended so that test questions may be taken from those test questions that were already analyzed, subject to well-defined rules like test items that are too difficult should not be included.

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## Contrastive Analysis of Students' Use of Cohesive Devices: A Basis in Designing an Instructional Material

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### Abstract

The aim of this study is to do a contrastive analysis of the dominant errors of Communication Arts 2 students' use of cohesive devices in English essays. Its four specific objectives are (1) to know the demographic profile of the respondents in terms of academic program, age, available English reading materials and references at home, first language, gender, length of stay in college, number of English courses taken in college and types of school the respondents graduated from; (2) to determine the dominant errors the respondents commit in the use of cohesive devices in essay; (3) to reveal if there is a connection between the respondents' profile and their use of cohesive devices; and (4) to design an instructional material that will help improve the students' writing performance.

The respondents in the study included fifty three (53) freshmen college students aged 16-29, taking different academic programs. All of them were enrolled in Communication Arts 2 at STI College for the academic year 2013-2014. They were composed of 37 male students and 16 female students.

The research findings are as follows: Academic program of the respondents. Majority of the respondents are HRS students that is 20 out of 53 or 37.7%, followed by 14 (26.4%) BSIT students. Whereas, the least frequency is accounted for is BSCS with only 3.8%; Age. The study reveals that 13 (24.5%) of the respondents are 17 years old; 12 (22.5%) of the respondents are 19 years old; 7 (13.2%) of the respondents are 18 years old. The least age brackets are 16, 26 and 29 years old. These only accounted for 1.19% of the respondents; Available English reading materials and references at home. The study reveals that 36 (67.9%) of the respondents have dictionary at home; (66%) of the respondents have magazine at home; and 31 (58.5%) of the respondents have newspaper at home. Whereas, only 6 (11.3%) of the respondents have thesaurus at home; Gender. There are more males than females among the respondents in this study. 37 (69.8%) of the respondents are males while 16 (30.2%) are females; First Language. The study reveals that 48 (90.6%) of the respondents use Tagalog as their first language; 3 (5.7%) use Bisaya as their first language; 1 (1.9%) uses Maranao as his first language; and 1 (1.9%) uses Waray as his first language; Length of stay in college. The study reveals that 17 (32.1%) of the respondents have been staying in college for 3 semesters and 16 (30.2%) of the respondents have been staying in college for 2 semesters. Only 3 (5.7%) respondents have been staying in college for 7 semesters and 3 (5.7%) have been staying in college for 8 semesters; Number of English courses taken. The study reveals that 21 (39.6%) of the respondents have taken two (2) English courses and 18 (34.0%) of the respondents have taken one (1) English course. Only 1 (1.9%) respondent has taken five (5) English courses; Types of school the respondents graduated from. The study reveals that 32 (60.4%) of the respondents graduated from public high schools, while 21 (39.6%) graduated from private high schools; The study reveals that 51 (96.2%) of the respondents committed error in using reference; 43 (81.1%) of the respondents committed error in using conjunction; 15 (28.3) of the respondents committed error in using lexical cohesion; 7 (13.2%) of the respondents committed error in using ellipsis; and 2 (3.8%) of the respondents committed error in using substitution. Thus, errors in using reference and conjunction are frequently committed by the respondents. In addition, the study reveals that there is no statistical connection between the respondents' demographic and scholastic profile (academic programs; age; gender; first language; length of stay in college; number of English courses taken in college; type of school they graduated from) and their use of cohesive devices.





The study also reveals that except for thesaurus and lexical cohesion there is no statistical connection between the respondents' available English reading materials and references at home and the errors committed in the use of cohesive devices.

The following inferences are made in the light of the above-mentioned findings: The analysis of the data shows that the respondents' profile does not affect their writing performance. That means, students commit mistakes in the use of cohesive devices regardless of their academic program, age, first language, gender, length of stay in college, number of English courses taken in college, and types of school from which they graduated from. In addition, the available English reading materials and references at home such as dictionary, journal, newspaper, textok and magazine do not have a significant connection with the respondents' errors in using cohesive devices. However, the findings reveal that there is a significant connection between the respondents with thesaurus at home and the errors they committed in their essays; All the errors made in learning the L2 could be attributed to 'interference' by the L1. Contrastive Analysis could not predict all learning difficulties, but was certainly useful in the retrospective explanation of errors; Differences between two languages affect the way a person produces in the target language because differences among languages cause learning difficulties, and on the other hand, similarities among languages make for ease of learning; The researcher realized that a well-designed instructional material can be used to help improve the students' writing performance.

The following recommendations were made due to the abovementioned findings and conclusions: The Instructors should use supplementary writing materials. They may adapt existing ones or design new ones. The Library should include supplementary writing materials for the students to help and motivate them in writing. The Textbook Authors should adapt their production of English textbooks in order to address the extensive writing materials and activities of the students. The Instructional Designers should include more exercises in the syllabi they make to help the students improve their ability to properly use cohesive devices in writing. The School Administrators should consider this study as an eye-opener regarding the need to raise the level of teaching effectiveness of the faculty, students' academic performance, and sufficiency in writings materials. The Future Researchers could use error analysis in the use of cohesive devices to make their study profounder and wider in scope.

**Keywords:** Contrastive Analysis, Cohesive Devices, Instructional Material

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## Introduction

The researcher observed that many students from STI College Recto are experiencing difficulty in writing English essays. Students, regardless of their academic programs, commit mistakes in different facets. The most common mistakes fall under spelling, diction, conjunctions, forming contraction, and using pronouns. This premise led the researcher to conduct a study about writing

## Statement Of The Problem

This study aims to do a contrastive analysis of the dominant errors of Communication Arts 2 students' use of cohesive devices in English essays. Furthermore, it seeks to answer the following questions:

1. What is the demographic and scholastic profile of the respondents in terms of:
  - 1.1 academic program the respondents are at;
  - 1.2 age;
  - 1.3 available English reading materials and references at home;
  - 1.4 gender;
  - 1.5 first language;
  - 1.6 length of stay in college;
  - 1.7 number of English courses taken;
  - 1.8 type of school the respondents graduated from?
2. What dominant errors do students commit in the use of cohesive devices?
3. Is there a connection between the participants' profile and the frequency of errors in the use of cohesive devices?
4. How can contrastive analysis explain the students' use of cohesive devices in English essays?
5. What instructional material may be designed in order to strengthen the students' use of cohesive devices?

## Research Design And Methodology

The researcher used the Descriptive Design.

### *Sources of Data and Respondents*

The researcher used purposive sampling to select the respondents in this study. The respondents were composed of 37 male students and 16 female students. These students were taking different academic programs and were enrolled in Communication Arts 2.

### *Instruments*

The researcher used questionnaire, writing task for a cause-and-effect essay, and check list.

### *Procedure for Gathering Data*

First, the researcher wrote a letter of request to STI College Recto administrator, Ms. Vilma C. Caparros, to give all Communication Arts 2 classes to the former. Second, on the third week of classes, the researcher asked the respondents to fill out the demographic profile questionnaire and to write an English essay about a given topic for one (1) hour and thirty (30) minutes. After collecting the works of the students, the researcher identified and classified the errors committed by the respondents in the use of cohesive devices in their essays. Using the check list, the researcher was able to zero-in the number of respondents who committed error in each cohesive device.

### *Statistical Treatment*

Frequency Distribution and Percentage Analysis

$$\frac{X}{N} \times 100\%$$

Chi-Square Test for Independence

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where

$\chi^2$  = is the chi-square computed value; O = observed frequency; E = expected frequency



## Analysis, Results And Discussions

### What is the Demographic and Scholastic Profile of the Respondents?

Table 1: Summary Table for the Respondents' Demographic and Scholastic Profile

|                     |                                                            |            | Frequency | Percentage |
|---------------------|------------------------------------------------------------|------------|-----------|------------|
| Scholastic Profile  | Academic program                                           | ACT        | 10        | 18.9       |
|                     |                                                            | BSBM       | 7         | 13.2       |
|                     |                                                            | BSCS       | 2         | 3.8        |
|                     |                                                            | BSIT       | 14        | 26.4       |
|                     |                                                            | HRS        | 20        | 37.7       |
|                     |                                                            | Total      | 53        | 100.0      |
|                     | Available English reading materials and references at home | Journal    | 6         | 11.3       |
|                     |                                                            | Magazine   | 35        | 66         |
|                     |                                                            | Newspaper  | 31        | 58.5       |
|                     |                                                            | Textbook   | 22        | 41.5       |
|                     |                                                            | Dictionary | 36        | 67.9       |
|                     |                                                            | Thesaurus  | 6         | 11.3       |
|                     |                                                            | Internet   | 9         | 17         |
|                     | Length of stay in college (semester)                       | 2          | 16        | 30.2       |
|                     |                                                            | 3          | 17        | 32.1       |
|                     |                                                            | 4          | 5         | 9.4        |
|                     |                                                            | 5          | 5         | 9.4        |
|                     |                                                            | 7          | 3         | 5.7        |
|                     |                                                            | 8          | 3         | 5.7        |
|                     |                                                            | 9          | 4         | 7.5        |
|                     |                                                            | Total      | 53        | 100.0      |
|                     | Number of English course taken                             | 1          | 18        | 34.0       |
|                     |                                                            | 2          | 21        | 39.6       |
|                     |                                                            | 3          | 5         | 9.4        |
|                     |                                                            | 4          | 6         | 11.3       |
|                     |                                                            | 5          | 1         | 1.9        |
|                     |                                                            | 6          | 2         | 3.8        |
|                     |                                                            | Total      | 53        | 100.0      |
|                     | Types of school graduated from                             | Private    | 21        | 39.6       |
|                     |                                                            | Public     | 32        | 60.4       |
|                     |                                                            | Total      | 53        | 100.0      |
| Demographic Profile | Age                                                        | 16         | 1         | 1.9        |
|                     |                                                            | 17         | 13        | 24.5       |
|                     |                                                            | 18         | 7         | 13.2       |
|                     |                                                            | 19         | 12        | 22.6       |
|                     |                                                            | 20         | 6         | 11.3       |
|                     |                                                            | 21         | 3         | 5.7        |
|                     |                                                            | 22         | 3         | 5.7        |
|                     |                                                            | 23         | 2         | 3.8        |
|                     |                                                            | 24         | 2         | 3.8        |
|                     |                                                            | 26         | 1         | 1.9        |
|                     |                                                            | 28         | 2         | 3.8        |
|                     |                                                            | 29         | 1         | 1.9        |
|                     |                                                            | Total      | 53        | 100.0      |
|                     | Gender                                                     | Female     | 16        | 30.2       |
|                     |                                                            | Male       | 37        | 69.8       |
|                     |                                                            | Total      | 53        | 100.0      |
|                     | First Language                                             | Bisaya     | 3         | 5.7        |
|                     |                                                            | Maranao    | 1         | 1.9        |
|                     |                                                            | Tagalog    | 48        | 90.6       |
|                     |                                                            | Waray      | 1         | 1.9        |
|                     |                                                            | Total      | 53        | 100.0      |

Table 1 shows that majority of the respondents are HRS students. It can be seen that 13 (24.5%) are 17 years old; 12 (22.5%) of the respondents are 19 years old; 7 (13.2%) of the respondents are 18 years old. The table also shows that 36 (67.9%) of the respondents have dictionaries at home; 35 (66%) of the respondents have magazines at home; 31 (58.5%) of the respondents have newspapers at home; and 22 (41.5%) of the respondents have textbooks at home. Whereas, only 6 (11.3%) of the respondents have thesaurus at home.



When it comes to the respondents' age, 37 (69.8%) are males while 16 (30.2%) are females. The table also shows that Tagalog is the first language of 48 out of 53 respondents. The table reveals that 17 (32.1%) of the respondents have been staying in college for 3 semesters and 16 (30.2%) of the respondents have been staying in college for 2 semesters. Only 3 (5.7%) respondents have been staying in college for 7 semesters and 3 (5.7%) have been staying in college for 8 semesters. When it comes to the number of English courses taken in college, it can be seen that 21 (39.6%) of the respondents have taken two (2) English courses and 18 (34.0%) of the respondents have taken one (1) English course. Only 1 (1.9%) respondent has taken five (5) English courses. The data reveal that 32 (60.4%) of the respondents graduated from public high schools, while 21 (39.6%) graduated from private high schools.

*What dominant errors do students commit in the use of cohesive devices?*

Table 2: *Distribution of Respondents in terms of the Errors Committed by the Respondents*

| Cohesive Devices | Frequency | Percentage | Rank |
|------------------|-----------|------------|------|
| Reference        | 51        | 96.2       | 1    |
| Substitution     | 2         | 3.8        | 5    |
| Ellipsis         | 7         | 13.2       | 4    |
| Conjunction      | 43        | 81.1       | 2    |
| Lexical Cohesion | 15        | 28.3       | 3    |

Table 2 shows that 51 (96.2%) of the respondents committed error in using reference and 43 (81.1%) of the respondents committed error in using conjunction. The least committed error is accounted for substitution cohesion with only 3.8% or two (2) respondents.

*Is there a connection between the respondents' profile and the frequency of errors in the use of cohesive devices?*

Table 3: *Chi-square Results between Academic Program of the Respondents and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 7.024            | .135     |
| Substitution                          | 4.029            | .402     |
| Ellipsis                              | 6.480            | .166     |
| Conjunction                           | 7.636            | .106     |
| Lexical Cohesion                      | 5.585            | .232     |

Table 3 shows that none of p-values are lower than 0.05. This implies that there is no statistical connection between the academic program of the respondents and the errors in the use of cohesive devices.

Table 4: *Chi-square Results between the Age of the Respondents and the Errors Committed*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 9.394            | .586     |
| Substitution                          | 3.097            | .989     |
| Ellipsis                              | 9.837            | .545     |
| Conjunction                           | 16.267           | .132     |
| Lexical Cohesion                      | 10.153           | .517     |

Table 4 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the age of the respondents and the errors in the use of cohesive devices.

Table 5: *Chi-square Results between Respondents who have Journals at Home and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 3.097            | .780     |
| Substitution                          | .490             | .484     |
| Ellipsis                              | .071             | .790     |
| Conjunction                           | 2.682            | .102     |
| Lexical Cohesion                      | .451             | .502     |

Table 5 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with journals and the errors in the use of cohesive devices.



Table 6: *Chi-square Results between the Respondents who have Magazines at Home and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 1.700            | .192     |
| Substitution                          | 1.700            | .192     |
| Ellipsis                              | 1.032            | .165     |
| Conjunction                           | .200             | .654     |
| Lexical Cohesion                      | 1.818            | .177     |

Table 6 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with magazines and the errors in the use of cohesive devices.

Table 7: *Chi-square Results between the Respondents who have Newspapers at Home and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 2.201            | .138     |
| Substitution                          | .062             | .804     |
| Ellipsis                              | 2.643            | .117     |
| Conjunction                           | 2.349            | .125     |
| Lexical Cohesion                      | .229             | .632     |

Table 7 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with newspapers and the errors in the use of cohesive devices.

Table 8: *Chi-square Results between Respondents who have Textbooks at Home and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | .037             | .848     |
| Substitution                          | .037             | .848     |
| Ellipsis                              | .001             | .975     |
| Conjunction                           | .219             | .640     |
| Lexical Cohesion                      | .091             | .763     |

Table 8 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with textbooks and the errors in the use of cohesive devices.

Table 9: *Chi-square Results between the Respondents who have Dictionaries at Home and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 1.584            | .208     |
| Substitution                          | 1.584            | .208     |
| Ellipsis                              | .045             | .831     |
| Conjunction                           | .024             | .876     |
| Lexical Cohesion                      | 2.044            | .153     |

Table 9 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with dictionaries and the errors in the use of cohesive devices.

Table 10: *Chi-square Results between the Respondents who have Thesaurus at Home and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 3.097            | .078     |
| Substitution                          | .490             | .484     |
| Ellipsis                              | 1.812            | .178     |
| Conjunction                           | .021             | .884     |
| Lexical Cohesion                      | 4.288            | .038     |

Table 10 shows that the p-values are all greater than 0.05 except that of between the respondents with thesaurus and the Lexical Cohesion errors. Thus, there is a significant connection between the respondents with thesaurus available at home and errors in Lexical Cohesion.



Table 11: *Chi-square Results between the Respondents who have Internet at Home and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 1.607            | .205     |
| Substitution                          | .760             | .383     |
| Ellipsis                              | .042             | .838     |
| Conjunction                           | .426             | .514     |
| Lexical Cohesion                      | 1.579            | .209     |

Table 11 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the respondents with internet and the errors in the use of cohesive devices.

Table 12: *Chi-square Results between Gender of the Respondents and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 1.471            | .225     |
| Substitution                          | 1.471            | .225     |
| Ellipsis                              | .010             | .920     |
| Conjunction                           | .607             | .436     |
| Lexical Cohesion                      | .098             | .754     |

Table 12 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between gender and respondents' errors in the use of cohesive devices.

Table 13: *Chi-square Results between the First Language of the Respondents and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | .404             | .939     |
| Substitution                          | .404             | .939     |
| Ellipsis                              | 1.494            | .684     |
| Conjunction                           | 4.263            | .234     |
| Lexical Cohesion                      | 3.529            | .317     |

Table 13 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the first language of the respondents and the errors in the use of cohesive devices.

Table 14: *Chi-square Results between the Length of Stay of the Respondents and the Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 5.607            | .469     |
| Substitution                          | 4.422            | .620     |
| Ellipsis                              | 7.775            | .255     |
| Conjunction                           | 4.639            | .591     |
| Lexical Cohesion                      | 13.645           | .034     |

Table 14 shows that there is a significant relationship between the respondents' length of stay in college and the errors in Lexical Cohesion.

Table 15: *Chi-square Results between the Number of English Courses taken by the Respondents and Errors in the Use of Cohesive Devices*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 6.219            | .285     |
| Substitution                          | 3.987            | .551     |
| Ellipsis                              | 10.167           | .071     |
| Conjunction                           | 7.837            | .165     |
| Lexical Cohesion                      | 10.787           | .056     |

Table 15 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the number of English courses taken by the respondents and the errors in the use of cohesive devices.



Table 16: *Chi-square Results between Types of School the Respondents graduated from and Errors*

| Errors in the use of cohesive devices | Chi-square value | p- value |
|---------------------------------------|------------------|----------|
| Reference                             | 3.823            | 0.051    |
| Substitution                          | 2.069            | .150     |
| Ellipsis                              | 2.164            | .141     |
| Conjunction                           | .001             | .978     |
| Lexical Cohesion                      | .346             | .556     |

Table 16 shows that none of the p-values are lower than 0.05. This implies that there is no statistical connection between the type of school the respondents graduated from and the errors in the use of cohesive devices.

*How can contrastive analysis explain the students' use of cohesive devices in English essays?*

Contrastive Analysis Hypothesis claimed that all the errors made in learning the L2 could be attributed to 'interference' by the L1. Contrastive Analysis could not predict all learning difficulties, but was certainly useful in the retrospective explanation of errors.

*What instructional material may be designed in order to strengthen the students' use of cohesive devices?*

The researcher designed an instructional material that aims to improve the learners' writing skill.

### Conclusions

1. The analysis of the data shows that the respondents' profile does not affect their writing performance.
2. All the errors made in learning the L2 may be attributed to 'interference' by the L1. Contrastive Analysis could not predict all learning difficulties, but was certainly useful in the retrospective explanation of errors.
3. Differences between two languages affect the way a person produces in the target language because differences among languages cause learning difficulties, and on the other hand, similarities among languages make for ease of learning.
4. A well-designed instructional material can be used to help improve the students' writing performance.

### Recommendations

1. The Instructors should use supplementary writing materials. They may adapt existing ones or design new ones.
2. The Library should include supplementary writing materials for the students to help and motivate them in writing.
3. The Textbook Authors should adapt their production of English textbooks in order to address the extensive writing materials and activities of the students.
4. The Instructional Designers should include more exercises in the syllabi they make to help the students improve their ability to properly use cohesive devices in writing.
5. The School Administrators should consider this study as an eye-opener regarding the need to raise the level of teaching effectiveness of the faculty, students' academic performance, and sufficiency in writings materials.
6. The Future Researchers could use error analysis in the use of cohesive devices to make their study profounder and wider in scope.

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## Error Analysis of Interoffice Correspondence of Selected MSU Offices

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### Abstract

The study attempted to perform an error analysis, that is to identify and analyze the linguistics errors found in the four (4) corpora of interoffice correspondence which consist of memorandums, special orders, cover letters, and indorsements of the three (3) selected offices of the Mindanao State University, Marawi City, namely, Office of the President, Office of the Vice-Chancellor for Academic Affairs, and the Graduate School during the calendar year 2005, 2006.

This paper used the qualitative-descriptive method. To reveal the anticipated outcomes the inductive data analysis was employed. When all of the sources were gathered, the individual texts were subjected to error analysis primarily focused on linguistic errors. These errors were categorized first as local and global errors, and to render error taxonomy more specific for analytic purpose, local and global errors were further classified into three linguistic categories, namely, lexical, syntactic, and morphological.

The findings of this study show that the errors found in the corpora of interoffice correspondence are manifestations that even at their level, writers of the said communications are not free from committing these errors. However, these errors were attributed to *Other Errors* for they could not be readily pigeonholed; they could very well be developmental, interlingual, or ambiguous errors. They could not be due to lack of competence since these communications were written by professionals who have been using the language, hence, warranting the confidence or assumption that they have enough exposure to it.

**Keywords:** *memorandums, special orders, indorsements, local errors, global errors, linguistic errors, lexical errors, syntactic errors, morphological errors, (MSU) Mindanao State University*

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## Introduction

The role of language in communication in the interpersonal sphere, and in national development, modernization and globalization can hardly be overemphasized. Sibayan (1996) and language teaching gurus like Pascasio emphatically state the case: language is a resource of personal and national development. The former views language as an asset for “exploitation-utilization for profit,” and the development of one’s nation which includes political, economic, educational, industrial, cultural, international relations, communication and the like greatly depends on language.

In this highly competitive age, proficient individuals enjoy a considerable edge over those of limited proficiency in the pursuit of their goals because they are believed to have reliable and dependable outputs. In fact, advertisements of business and industry for job vacancies underscore competence in language skills, English in particular. What the international market demands is English proficiency, the international lingua franca or most widely used language of wider communication. English proficiency is indisputably an asset.

The errors committed by adults and professionals --- employees and practitioners in different fields --- are treated in a different manner. The explanation that committing errors is a natural part of learning and that success comes only after passing through a myriad of mistakes --- cannot, and should not serve as an excuse for what critics refer to as a mutilation or mangling of the king’s language. In the spontaneous give-and-take of conversation, errors are understandable; these are usually charged or attributed to performance factors like fatigue, lack of attention, nervousness, or excitement.

The deteriorating quality of English is not merely confined within the classroom nor observed only in the written compositions of students. Samples found in public documents such as memorandums, indorsements, official correspondence, and publications which are widely circulated in the bureaucracy make a sumptuous fare for applied linguistics researchers. These said documents are expected to be free from errors because they are assumed to have undergone checking and editing. A preliminary survey has revealed to this researcher instances of the use of inappropriate terms and register, and the exclusive use of conceptual languages without even explaining them.

It is evident, therefore, that there exists a situation which makes this investigation imperative and compelling.

## Statement of the Problem

The study aimed to perform an error analysis, that is, to identify and analyze the linguistic errors found in the interoffice correspondence such as memorandums, letters, indorsements, and special orders of the three (3) offices of the Mindanao State University, Marawi City, namely: Office of the President, Office of the Vice-Chancellor for Academic Affairs, and the Graduate School in the calendar year 2005-2006.

Specifically, this study sought to answer the following questions:

1. What broad types of errors and specific language errors are found in the corpora of texts --- interoffice correspondence gathered for the study? How, may these be classified?
2. What could be the sources of these errors?
3. What implications do these errors have for language pedagogy and the use of English?

## Methodology

### *Research Design*

This paper used the qualitative-descriptive method. Moreover, to reveal the anticipated outcomes the inductive data analysis was employed. When all of the sources were gathered, the individual texts were subjected to error analysis primarily focused on linguistic errors. These errors were categorized first as local and global errors, and to render error taxonomy more specific for analytic purpose, local and global errors were further classified into three linguistic categories, namely, lexical, syntactic, and morphological.

### *Locale*

The study was conducted in the Mindanao State University, Marawi City, using the four corpora of interoffice of the three (3) offices , namely: Office of the President, Office of the Vice-chancellor for Academic Affairs, and the Graduate School.



#### *Sources of Data/Materials*

Three (3) offices of the Mindanao State University, Marawi City, namely: Office of the President, Office of the Vice-Chancellor for Academic Affairs, and the Graduate School were considered. From each office, the following communications were taken: for the Office of the President, memorandums, letters, and special orders; for the Office of the Vice-Chancellor for Academic Affairs, memorandums, and indorsements; and for the Graduate School, meomorandums, and letters.

#### *Method/Procedure of Data Gathering*

A letter request was sent to the respective offices to allow the researcher to obtain the said sources of data. When all of the sources were gathered, the individual texts were subjected to error analysis primarily focused on linguistic errors. These errors were categorized first as local and global errors, and to render error taxonomy more specific for analytic purpose, local and global errors were further classified into three linguistic categories, namely, lexical, syntactic, and morphological.

The researcher modified the error taxonomy by including mechanical considerations which include faulty usage of capitalization, improper use of punctuation marks, and misspelling/typographical errors. After identifying, classifying, and categorizing these errors, possible corrections and interpretations were given, and raters were asked to check them. Raters were chosen based on their competence in the English language and technical writing, field of specialization, and teaching experience. In cases of disagreement regarding the corrections and interpretations as well as the classification of errors, the majority's judgment must prevail.

#### *Statistical Treatment of Data*

The errors found were subjected to simple statistical treatment---- frequency count and percentage distribution. The total number of local and global errors that appeared in the said academic correspondence was taken first then divided by the over-all total number of errors.

$$\text{Percentage} = \frac{\text{Total No. of Local and Global Errors}}{\text{Over-all Total No. of Errors}}$$

Since global and local errors are further classified into lexical, syntactic, morphological, and mechanical/other errors, the percentage of the said sub-classifications was also taken.

$$\text{Percentage} = \frac{\text{Total No. of Local and Global Lexical, Syntactic, Morphological, and Mechanical/Other Errors}}{\text{Over-all Total No. of Local and Global Lexical, Syntactic, Morphological, and Mechanical/Other Errors}}$$

#### **Results and Discussion**

The study revealed the following findings:

1. Four (4) corpora of interoffice correspondence, namely, memorandums, special orders, letters, and indorsements were taken into consideration. The language errors found in them were first categorized as local and global errors and further classified into three linguistic categories, lexical, syntactic, and morphological. Mechanical errors which include faulty usage of capitalization, improper use of punctuation marks, and misspelling/typographical errors comprised another category. A total of 166 errors were found; 150 or 90.36% of them were local and 16 or 9.64% were global. This is shown in Table 1 below:



Table 1. *Distribution of Local and Global Errors by Source*

| Source         | Local  | Global | Total |
|----------------|--------|--------|-------|
| Op             |        |        |       |
| Special Orders | 72     | 7      | 79    |
| Memorandums    | 34     | 4      | 38    |
| Letters        | 1      |        | 1     |
| Ovcaa          |        |        |       |
| Memorandums    | 19     | 2      | 21    |
| Indorsements   | 19     | 2      | 21    |
| Letters        | 4      | 1      | 5     |
| Graduate Sch.  |        |        |       |
| Memorandums    | 1      |        | 1     |
| Letters        |        |        |       |
| Total          | 150    | 16     | 166   |
| %              | 90.36% | 9.64%  | 100%  |

2. Of the errors, syntactic errors which totaled 77 or 45% formed the largest group; morphological errors, 43 or 25%; mechanical errors, 27 or 16%; and lexical errors, 24 or 14%. And of these syntactic errors, word order topped the list. These are further shown in Table 2 and Table 2.1 below.

Table 2. *Sub-classification of Local Errors and Their Distribution by Source*

| Source                      | Linguistic |         |               | Mechanical/Other Errors | Total |
|-----------------------------|------------|---------|---------------|-------------------------|-------|
|                             | Syntactic  | Lexical | Morphological |                         |       |
| OP                          |            |         |               |                         |       |
| Special Orders              | 43         | 9       | 21            | 12                      | 85    |
| Memorandums                 | 15         | 7       | 4             | 9                       | 35    |
| Letters                     |            |         | 1             |                         | 1     |
| OVCAA                       |            |         |               |                         |       |
| Memorandums                 | 11         | 4       | 5             | 2                       | 22    |
| Indorsements                | 5          | 2       | 10            | 3                       | 20    |
| Letters                     | 2          | 1       | 2             |                         | 5     |
| GRADUATE SCHOOL Memorandums |            |         |               |                         |       |
| Letters                     | 1          | 1       |               | 1                       | 3     |
| TOTAL                       | 77         | 24      | 43            | 27                      | 171   |
| %                           | 45%        | 14%     | 25%           | 16%                     | 100%  |

Table 2.1. *Local Syntactic Errors*

| Source                 | Articles | Pronouns | Prepositions | Word | Order | Total |
|------------------------|----------|----------|--------------|------|-------|-------|
| Op                     |          |          |              |      |       |       |
| Special Orders         | 12       | 11       | 11           | 9    |       | 43    |
| Memorandums            | 4        | 1        | 4            | 6    |       | 15    |
| Letters                |          |          |              |      |       |       |
| Ovcaa                  |          |          |              |      |       |       |
| Memorandums            | 3        | 2        | 2            | 4    |       | 11    |
| Indorsements           |          | 1        |              | 4    |       | 5     |
| Letters                |          |          | 1            | 1    |       | 2     |
| Grad. Sch. Memorandums |          |          |              |      |       |       |
| Letters                |          |          |              | 1    |       | 1     |
| Total                  | 19       | 15       | 18           | 25   |       | 77    |
| %                      | 24.6%    | 20%      | 23.4%        | 32%  |       | 100%  |

Moreover, of the global errors, syntactic errors numbering 15 or 55.55%, again proved preponderant; lexical errors follow with 11 or 40.74%; and morphological with 1 or 3.71%. Table 3 below has the following information.



Table 3. *Sub-classification of Global Errors and Their Distribution by Source*

| Source                      | Linguistic |         |               | Mechanical/<br>Other Errors | Total |
|-----------------------------|------------|---------|---------------|-----------------------------|-------|
|                             | Syntactic  | Lexical | Morphological |                             |       |
| OP                          |            |         |               |                             |       |
| Special Orders              | 7          | 4       | 1             |                             | 12    |
| Memorandums                 | 5          | 3       |               |                             | 8     |
| Letters                     |            |         |               |                             |       |
| OVCAA                       |            |         |               |                             |       |
| Memorandums                 |            | 2       |               |                             | 2     |
| Indorsements                | 3          | 1       |               |                             | 4     |
| Letters                     |            | 1       |               |                             | 1     |
| GRADUATE SCHOOL Memorandums |            |         |               |                             |       |
| Letters                     |            |         |               |                             |       |
| TOTAL                       | 15         | 11      | 1             |                             | 27    |
| %                           | 55.55 %    | 40.74 % | 3.71 %        |                             | 100%  |

Most of the errors found were caused by other errors because they do not fit in any other category. Despite these errors, the message got communicated; there were just some violations of the conventions of Standard English being committed. Such types of errors were attributed to performance not competence.

The findings of this study indicated that the errors found in the corpora of interoffice correspondence are manifestations that even at their level, writers of the said communications are not free from committing these errors. However, these errors were attributed to *Other Errors* for they could not be readily pigeonholed; they could very well be developmental, interlingual, or ambiguous errors. They could not be due to lack of competence since these communications were written by professionals who have been using the language, hence, warranting the confidence or assumption that they have enough exposure to it.

Specifically, the errors found manifested the unique reflections of creative constructions to achieve the writer's goal. They could be more of performance variables. To be specific, they were a function of carelessness or sloppiness.

### Conclusions

The findings of the study indicate that the errors found in the corpora of interoffice correspondence are preponderant and frequently recurrent enough, and prove that even at the top echelons of the bureaucracy, writers of the said communications are not free from committing these errors. However, these errors were attributed to Other Errors for they could not be pigeonholed with facility; they could not very well be labeled outright as developmental, interlingual, or ambiguous errors. They could not be due to lack of competence since these communications were written by professionals who have been routinely using the English language, hence, warranting the confidence or assumption that they have enough exposure to it and the accepted level of proficiency.

Specifically, the errors discovered tend to suggest creative constructions or use of communicative strategies to achieve the writer's goal. They could be accounted for by so-called performance variables. To be specific, they were mostly a function of carelessness or sloppiness which though less serious than lack of competence, should not be taken lightly. Such sloppiness and the untidiness it causes is a discourtesy to the readers, and reflect on the institution; it does not make for a flattering image of the university.

### Recommendations

Based of the findings and conclusions of this study, the following are recommended:

1. Each office should more carefully consider the qualifications of people applying for positions that require technical writing. Writing competence must be a determining factor.
2. The writer in each office must see to it that the communications are properly reviewed and edited or see to it that enough time is spent for checking for errors and inaccuracies before respective heads signed them for dissemination.



3. Heads of office also should read the communication more critically before signing it to check if the intended message is correctly expressed or stated, and to find out if it is free of errors.
4. The administration must think of holding and sponsoring executive trainings and seminar-workshops on the techniques and concepts or principles of effective communication writing, with special stress on the process approach and editing and proof reading.
5. Office Heads should also be willing to send their writers in charge or any staff involved in office correspondence to attend seminars or training programs on effective communication writing to enhance their writing skills and update them on new techniques which they can apply in the performance of their tasks.
6. The Language Center and/or the English Department of the University must address the problem by designing and producing modules on the proper ways and techniques in writing various forms of communications and offering crash or short-term programs, based on needs analysis.

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## Crunchy Coconut (Cocos Nucifera) Shell Activated Charcoal Powder Chocolate Cookies

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### Abstract

The study aimed to introduce the acceptability of Crunchy Coconut (Cocos nucifera) Shell Activated Charcoal Powder Chocolate Cookies. The experimental method of research using Five-Point Hedonic Scale was answered by selected respondents in terms of appearance, aroma, taste and texture.

The finding showed that treatment B has the highest mean level that is scaled as “Highly Acceptable” in terms of appearance while in aroma, taste, and texture treatment A has the highest mean level that is scaled as “Highly Acceptable”.

Generally, treatment A was accepted by the respondents.

There was no significant difference in the level of acceptability of the “Crunchy Coconut (Cocos nucifera) Shell Activated Charcoal Powder Chocolate Cookies” in terms of appearance. In terms of aroma, taste, and texture there was a significant difference in the level of acceptability of the “Crunchy Coconut (Cocos nucifera) Shell Activated Charcoal Powder Chocolate Cookies”. ANOVA was used as statistical tool to test the difference between groups. Post Hoc Test and Scheffe were also used to confirm the differences occurred between groups in an unplanned comparison between groups.

Based on the findings and conclusions, recommendations were formulated

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## **Introduction**

Developing a new food product is very popular nowadays. This is essential in food industry to keep up the market trends and demands for the benefit of the consumers as well as the industry. Today, there are many innovations in food business involving multiple processes to create an old product to a new one. Food nourishes our body. But too much or imbalance and unsafe consumption of food will have no good result and sometime result to food poisoning.

Readings from coconut shell activated charcoal powder encourage the researcher to investigate and develop baked product treated with coconut shell activated charcoal powder. Coconut shell activated charcoal powder is not a plain ash at home but rather heated to produce internal spaces, high in microspores that increase its ability to absorb poison (www.medicinenet.com May, 2015). Coconut shell is a Class A source of medicinal charcoal which is advisable to be used (Remington, 20<sup>th</sup> edition.1238-1230). This coconut shell activated charcoal powder doesn't contain carcinogens or cancer causing agents (www.bonappetit.com. April, 2015). Severino S. Paypa, mentioned the benefits of charcoal in his book 'Healing Wonders of Charcoal" as treatment in of skin ulcers, wounds, animal bites, chemical and food poisoning. It can be a blood cleansing agent and absorb cancer producing agents that an adult could take 80-100gms a day without danger or side effects. According to him, all his studies showed that charcoal is not harmful when ingested or applied on skin except if one is allergic on it.

In this study, different treatments or measurements of coconut shell activated charcoal powder was added to chocolate cookies to hide its appearance especially to the kids. The result showed that the least charcoal powder added to chocolate cookies is most preferred and liked by the respondents. This implies that the flavor preferred by the consumers was relatively sweet and fit to the appearance and taste among the different treatment.

For commercialization, consumers are encouraged to buy this product since they are the end user. After cost analysis, the cost of a 10gm crunchy coconut shell activated charcoal powdered chocolate cookies is only 9.35php.

Furthermore, there must be studies to back up medically and scientific validation on the benefit of crunchy coconut shell activated charcoal powder chocolate cookies and to create another new food product development from charcoal.

## **Objectives Of The Study**

The objective of this study is to determine the acceptability of Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies in terms of appearance, aroma, taste and texture.

This study specifically determine to answer what is the accepted treatment and how much is the cost per 10grams or per piece of Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies.

## **Research Methodology**

The experimental research design was used in this study using the Five Point Hedonic Scale as sensory evaluation to determine the evaluation report of the respondent acceptability. There were three replications done by thirty (30) experts as respondents to evaluate the product.

There were experimental stages which were divided into four phases.

### **Phase I – Selection and Preparation of Raw Materials**

Coconut shell was used as raw material in this study because of it has medicinal benefits. It was cleaned, dried under the heat of the sun and cut into desired sizes.

### **Phase II - Carbonization or Processing of Activated Charcoal Powder**

Carbonization was done in a modified drum kiln which is made up of a large can. This was used for charring coconut shell. The drum is covered during the burning process. Carbonization takes place when the smoke is thick and white and ends when the smoke becomes bluish. Charcoal cubes are then gathered, cool, pulverized, sifted and sterilized in an oven for 15 to 20 minutes before storing in preserving jars.



### Phase III – Testing and Re- testing of Baking the Three Different Treatment

Baking of Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies was done by adding the following measurement to the basic standard recipe of chocolate cookies as seen below: Treatment A – plus 1/8c of coconut shell activated charcoal powder; Treatment B - plus 1/4c of coconut shell activated charcoal powder; Treatment C – plus 1/2c of coconut shell activated charcoal powder

### Phase IV – Product Evaluation and Data Processing Technique

The crunchy coconut shell activated charcoal powder chocolate cookies were then divided into three. There were three replications done to be evaluated by thirty (30) respondents and experts on food. Sensory score sheet was used to determine its acceptability as to its appearance, aroma, taste, and texture using the Five Point Hedonic Scale which are the following:

Table 1. *Five point Hedonic Scale*

| Scale | Range of Score | Interpretation    |
|-------|----------------|-------------------|
| 5     | 4.24-5.00      | Highly acceptable |
| 4     | 3.43-4.23      | Very acceptable   |
| 3     | 2.62-3.42      | Acceptable        |
| 2     | 1.81-2.61      | Fair acceptable   |
| 1     | 1.00-1.80      | Not acceptable    |

Mean was used to determine the level of acceptability. ANOVA was applied to determine the significant difference. In some treatments, Post Hoc Test was done to confirm the differences occurred between groups when the result has significant difference. Scheffe was also applied to make unplanned comparison among groups.

### Results And Discussions

The data presented are the results of evaluation gathered from the respondents on the acceptability of Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies in term of appearance, aroma, taste and texture.

In terms of appearance, Treatment B (added with 1/4c coconut shell activated charcoal powder) is the most accepted treatment which has the mean rating of 4.500 which is interpreted as Highly Acceptable. Whereas, the Treatment C (1/2c) got the lowest mean rating which is 4.300 even though interpreted as Highly Acceptable also. The result of ANOVA statistical test on significant difference of different treatments on Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies is not significant. That is because its significant value is 0.503 which is greater than 0.5 level of significant. Therefore the result is accepted.

In terms of aroma, Treatment A (1/8c) is the most accepted treatment which has the mean rating of 4.666 interpreted as Highly Acceptable.

Treatment C (1/2) has the lowest mean rating which is 4.200 interpreted only as Very Acceptable. Statistical test on ANOVA was applied to determine the significant difference. The result showed that there is significant difference among treatments because its significant value is 0.044 which is less the 0.5 level of significance. Post Hoc test and Scheffe test were run to confirm differences between unplanned comparisons between groups. The results are the following:

Treatment A is significant to Treatment C and treatment B is not significant to each other. Treatment B is significant to treatment C but not significant to treatment A. Treatment C is not significant to treatment A but significant to treatment B. The result is rejected.

In terms of taste, treatment A (1/8c) is most accepted which got the mean rating of 4.733 interpreted as Highly Acceptable while treatment C (1/2c) got the lowest mean rating in terms of appearance which is only 3.933 interpreted as Very Acceptable. ANOVA statistical test was applied there is significant difference because the significant value is 0.000 which is less than 0.05 level of significant. The result was rejected. It was subjected to Post Hoc test and for multiple comparisons in Scheffe statistical test. The results are the following:



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## The Quality of Life of Muslim Traders in Iloilo City, Philippines

Ronaldo F. Frufonga, Vilma S. Sulleza  
West Visayas State University-Janiuay Campus  
Janiuay, Iloilo

### Abstract

This study attempted to evaluate the quality of life of Muslim traders in Iloilo City. They have traded in this city and resided in its vicinity for several years after migrating from Lanao del Sur when then President Ferdinand Marcos declared martial law in 1972. Most of these Muslim traders were Maranaos who fled and found their way to the peaceful city of Iloilo. The Quality of Life index by Ferrans and Powers (1984 & 1998) was used as a guide to assess the present condition of the quality of life of Muslim traders for the year 2014-2015. The questionnaire measures the respondent's general satisfaction towards different domains of life. A comparison of the weighted mean scores for the overall quality of life and the subdomains grouped according to gender, tribe and type of business was done. Results revealed that the weighted mean scores for the overall quality of life including all the subdomains were above 15 indicating that Muslim traders perceived their quality of life as very good. These Muslim traders have accepted their present condition in life, specifically the quality of their health and functioning, socio-economic, psychological and spiritual, and family conditions.

Key Words: Muslim traders, quality of life

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Key Words: Muslim traders, quality of life

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## Introduction

The City of Iloilo is a major and highly urbanized city in the Philippines. It is the regional center of the Western Visayas as well as the center of the Iloilo-Guimaras Metropolitan Area. In the 2007 census, Iloilo City had a population of 418,710 with a 1.8% population annual growth rate. It is bordered by the towns of Oton in the west, Pavia in the north, Leganes in the northeast and the Iloilo Strait in its eastern and southern coastline. The city was a conglomeration of former towns, which are now the geographical districts, composing of Jaro, Molo, La Paz, Mandurriao, Villa Arevalo, and Iloilo City Proper. The district of Lapuz, a former part of La Paz, was declared a separate district in 2008, (<http://www.iloilocity.org/history.html>).

Even before the Spanish colonizers came, Iloilo had a flourishing economy. In the late 18th century, the development of large-scale weaving industry started the movement of Iloilo's surge in trade and economy in the Visayas. Sometimes referred to as the "Textile Capital of the Philippines", the products were exported to Manila and other foreign places. Because of the rise of textile industry, there was also a rise of the upper middle class. However, the introduction of cheap textile from UK and the emergence of the sugar economy, the industry waned in the mid-19th century. Museo Iloilo is the repository of Iloilo's past, (<http://www.iloilocity.org/history.html>)

In 1970 was a decade of turmoil in Mindanao. The so-called land of promise was besieged with a bloody Muslim secessionist movement met with strong resistance from the military. When then President Ferdinand Marcos declared martial law in 1972, many fled the violence-torn island. In search of a peaceful place to live, some 12 Muslims from Lanao del Sur found their way to the tranquil Iloilo City. On November 5, 1977, the Iloilo Islamic Association was established, the forerunner of what is now known as the Iloilo Muslim Community (IMC), the umbrella organization of Muslims in the city. According to Sammy Hadjimanan, IMC spokesperson and Muslim Federation Region 6 public information officer, nearly four decades after the establishment of the Iloilo Islamic Association, the number of Muslims in the city has grown between 2,000 to 3,000, (Macahilo, 2014).

According to Hadjimanan, Muslims feel welcome in Iloilo City. The Ilonggos are kind and do not discriminate the Muslim community. The very first mosque was located in Quezon Street, City Proper. It was where Muslims gathered to worship. The mosque moved to several areas of the city – Young Men's Christian Association building on Iznart Street and in Pueblo Concepcion, Mandurriao district – until it found a permanent place in Barangay Magdalo, La Paz district. Now, there are three thriving Muslim communities in Iloilo – one in Barangay Magdalo, La Paz; one in Barangay San Isidro, La Paz; and another in Barangay San Pedro, Molo district. Hadjimanan said leaders of these communities meet regularly and discuss concerns, (Macahilo, 2014).

The earliest Muslim migration that the members could attest to is in the 1950's. Reasons for migration are mostly economic. Majority are traders from Lanao Del Sur (Maranaos), though there are Tausugs and Magindanaos but they comprise less than 5% of the approximately 3,000 Muslim population in Iloilo City, (<http://www.iloilocity.org/history.html>).

In the 1970's more migrants came most were single young males. The main reason for the migration was to avoid the then conflict between the Muslim rebels and the government troops during the Martial Law. While there are a number of research studies on the quality of life of ethnic groups or communities in several countries, in the Philippines few have been recorded on how Muslim minority groups rate their quality of life and how satisfied they are with their lives. The Muslim tribe in Iloilo City is an ideal group for this kind of study. Considering the needs and the desires of the Muslim traders to have a better life, living in such urbanized city might give them higher chances to achieve their aspirations and be pleased and contented with life or experience happiness. To look into how this influences their quality of life, this study was conducted. Since, there was no exact data as to the actual number of Muslim traders in Iloilo City, but their spokesperson admitted that there was an increasing number from 2,000 to 3,000 within the four decades.

Further, this study is significant to the local government unit to formulate and establish policies that can strengthen the growth and development of the local economy through trade. It will further establish measures to generate moral revenues from the Muslim traders in Iloilo City which can also a source of information for policy planning of the city.





### **Statement of the Problem**

This study sought to find out the total quality of life of Muslim traders in Iloilo City based on health and functioning, social and economic, psychological and spiritual, and family domains.

### **Methodology**

This study was conducted to determine the quality of life of Muslim traders in the City of Iloilo. The survey research method was employed in the study. According to Gay (2001), the descriptive method of research involves collecting data to answer questions concerning the current status of the subject under study.

The respondents were recruited to participate in this study through the help of their spokesman of the Iloilo City Muslim community, Sammy Hagimanan. The objectives and procedure of this study was carefully explained and the possible recruits to be able to secure the necessary permit to conduct the study in the area.

The respondents included the study were the 63 Muslim traders in Iloilo City, who may either be male or female, were selected through convenience sampling according to the following inclusion criteria: (a) individuals who are Muslim traders; (b) aged 18 years or over; and (c) willing to take part in the study. The individual's rights and anonymity was respected. The purposes of the study, data collection procedure, type of questionnaire to be used, and the right to refuse to participate were explained to those who fit the above-mentioned criteria. Those who are willing to participate were informed and assured of the confidentiality of the data that were collected and that the results were reported as a group.

The community referred to in this study is the place where they can establish their own business. They sell various products like ready to wear, jewelry, cellphone accessories, gadgets and appliances. It is located at the heart of the city together with other business establishments.

The Quality of Life of participants was assessed using the Quality of Life Index (QLI) Generic Version III instrument, which was downloaded from the official QLI website. It was developed by Ferrans and Powers (1984 and 1998), professors at the University of Illinois (Chicago, USA), using different research approaches with its theoretical framework being satisfaction with life. It includes 66 items, divided into two sections, related to four life domains (number of items): Health and Functioning (13), Socio-economic (8), Psychological/Spiritual (7), and Family (5).

The first section is related to the satisfaction the person experiences with various aspects of life, and the second is related to the importance he or she ascribes to the same aspects, (All, 2000; Donpraping, 2006; Hagell, et al, 2006; Yamada, et al, 2005).

Each item is evaluated by the participant on two 6-point Likert scales ranging from "very dissatisfied" (1) to "very satisfied" (6) or "not important" (1) to "very important" (6). The importance scores allow weighting of the satisfaction scores, reflecting both the individual's satisfaction and importance of values. This importance score can be used to partially evaluate response shift. Five scores were generated: an overall score for quality of life and scores for the four domains. The scores range from 0 to 30, (Ferrans & Powers, 1984 & 1998), but no cut-off was established. In this study, however, scores of 14 or less indicate a low quality of life while a high quality of life is indicated by scores of 15 and above.

The data gathered for this research was subjected to certain computer – processed statistical tests. A scoring program (Microsoft Excel Scoring) developed by Dr. Derek McEntee, was downloaded from the official QLI website (Ferrans CE, Powers MJ. 1998) and was used to calculate the total and domain scores. In this program, there are four main columns which are separated by bold lines. Individual's responses were entered and calculations were performed in the smaller columns within the main columns. Blank responses were entered as zero for that particular response, (Ferrans CE, Powers MJ. 1998).

In order to graphically display the QLI scores of the Muslim traders in Iloilo City grouped according to variables, a boxplot (also known as a box and whisker plot) method developed by John Tukey in 1997, (<http://www.netmba/statistics/plot/box> ) was employed. The sampled data in this study depended on the number





of willing respondents thus limits were not set in terms of the number of participants. The assumption of normality (distribution of data) or equality of variance, therefore, was not met. Furthermore, it was not the raw data values (i.e., individual's responses for each item in the survey questionnaire) but rather the weighted scores that were used for calculation of the statistic.

## Results and Discussion

### *Quality of Life of Muslim Traders in Iloilo City*

Since the Muslim traders established their business in the heart of the City of Iloilo and reside within its vicinity, a comparison of their quality of life was done. The comparison was based on their overall quality of life of Muslim traders in Iloilo City and other subdomains of life.

Each Muslim cultural community displays unique and peculiar traits, features, and qualities. These distinctions distinguish one Muslim cultural community from another. All these communities are unified by their Islamic faith, which has already pervaded many aspects of their lives since Islam is a way of life. Regardless of cultural community, all Filipino Muslims belong to one *Ummah Muslimah*, (Anies, et al 2012).

It can be seen from the Table 1 results that the average scores are above 20 indicating a good quality of life of Muslim traders in Iloilo City. However, since the range of values between variables vary, it was therefore appropriate to describe the quality of life of Muslim traders in Iloilo City based on the different variables included in the study.

Evaluation of the quality of life of Muslim traders in Iloilo City is shown in Table 1. Weighted scores vary from as low as 15 to as high as 30. In addition, weighted scores below 15 indicate poor quality of life while those above 15 denote good quality of life.

Table 1. *Weighted Scores of the Quality of life index of Muslim traders in Iloilo City grouped according to variables*

|                                | Overall Quality of Life Muslim Traders in Iloilo City |             | Gender |        | Type of Business | Cellphone Accessories/<br>Gadgets/Appliances |
|--------------------------------|-------------------------------------------------------|-------------|--------|--------|------------------|----------------------------------------------|
|                                | Maranao                                               | Maguindanao | Male   | Female | RTW/Jewelry      |                                              |
| High                           | 26.06                                                 | 27.82       | 27.82  | 25.83  | 24.85            | 27.82                                        |
| Low                            | 17.88                                                 | 18.52       | 17.74  | 18.58  | 18.17            | 17.74                                        |
| Mean                           | 21.4                                                  | 20.03       | 21.18  | 21.295 | 21.635           | 21.18                                        |
| Health and Functioning Domain  |                                                       |             |        |        |                  |                                              |
| High                           | 25.73                                                 | 24.92       | 25.73  | 24.42  | 24.96            | 25.73                                        |
| Low                            | 18.77                                                 | 18.77       | 15.69  | 18.77  | 17.46            | 15.69                                        |
| Mean                           | 21                                                    | 21.23       | 21     | 21.52  | 21.195           | 21                                           |
| Psychological/Spiritual Domain |                                                       |             |        |        |                  |                                              |
| High                           | 30                                                    | 30          | 30     | 30     | 28.57            | 30                                           |
| Low                            | 17.36                                                 | 15.64       | 15.64  | 16.07  | 15.64            | 16                                           |
| Mean                           | 22.2                                                  | 21.44       | 22     | 21.715 | 21.575           | 22.29                                        |
| Socio-Economic Domain          |                                                       |             |        |        |                  |                                              |
| High                           | 27.5                                                  | 30          | 30     | 25.63  | 25.75            | 30                                           |
| Low                            | 16.25                                                 | 16.63       | 15.69  | 16.33  | 17.19            | 15.69                                        |
| Mean                           | 21                                                    | 19.81       | 21     | 21     | 20.81            | 21.13                                        |
| Family Domain                  |                                                       |             |        |        |                  |                                              |
| High                           | 28.5                                                  | 28.8        | 28.8   | 25.8   | 28.5             | 28.8                                         |
| Low                            | 15.8                                                  | 18.7        | 15.8   | 18.7   | 18.1             | 15.8                                         |
| Mean                           | 21.1                                                  | 22.2        | 20.9   | 23.1   | 22.95            | 20.7                                         |

### *Overall Quality of Life (QOL)*

#### *Range and Means of the weighted scores for the overall Quality of Life of Muslim Traders in Iloilo City.*

Results of the study showed that the mean scores for the overall and subdomains of the quality of life index were above 15 in all variables included in the study. Thus, it can be generalized that almost all individuals of the Muslim traders in Iloilo City have a high overall quality of life. Specifically, upper outlier are noted in Maguindanao



tribe, male group of Muslim traders and as to type of business, upper outlier is noted in the cell phone accessories/ gadgets and appliances. These groups indicate that they were highly satisfied and contented with their life condition. Despite their being far away from their homeland, and mix themselves with Christian brothers and sisters, have accepted their circumstances in life, specifically the quality of their health and functioning, social and economic, psychological and spiritual, and family conditions.

Figure 1 presents the results of the overall mean scores of quality of life of Muslim traders in Iloilo City.

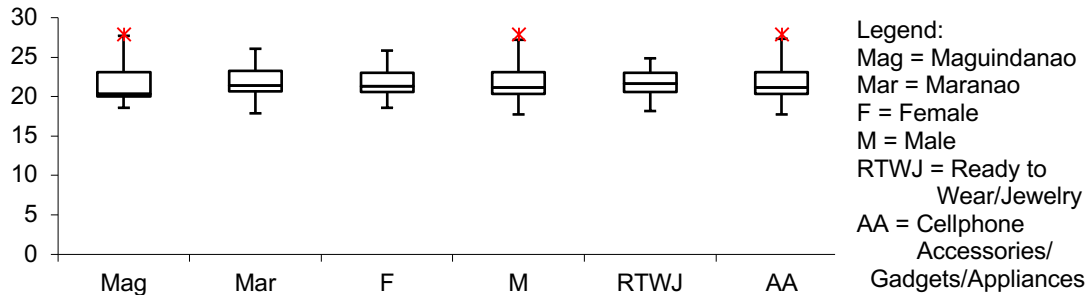


Figure 1. Boxplot presentation of the weighted scores for overall quality of life of Muslim Traders in Iloilo City

#### Health and Functioning Domain

*Range and means of the weighted scores for the health and functioning Quality of Life of Muslim Traders in Iloilo City.*

Observation on the boxplots shows that the range of the weighted scores in the health and functioning domain of the quality of life index (QLI) were observed to vary between variables included in the study (Fig. 2). Almost all individuals are satisfied with the health and functioning aspect of their lives. Further, lower outliers were noted in male group and those engaged in the type of business in Cell phone accessories/gadgets and appliances indicating that few individual are satisfied and contented with their health and functioning aspect of their lives. It is also important to note that health awareness programs and delivery of healthcare services by the City of Iloilo have helped in preventing and alleviating illnesses in the Muslim traders.

Assessment of satisfaction with respect to the health and functioning life domain revealed that high satisfaction with their health, healthcare, pain, energy condition, abilities in taking care of family responsibilities and handling worries that come into their lives, sex life, usefulness to others and recreation. These variables were also considered important by the Muslim traders in Iloilo City. Generally, high satisfaction and contentment were observed in health and functioning domain of the lives Muslim traders in Iloilo City.

It can be argued from the results of this study that Islamic tenets interwoven with traditional practices may have played a role in the perception of the trader Muslim cultural groups of a very good quality of life, (Anies, et al 2012). Majority of Muslim Filipinos' strict observance of Islamic principles and application to their way of life so as not to provoke Allah's displeasure are perceived to prevent the occurrence of misfortunes or illnesses. These groups also practice rituals in order to continually pacify the spirits of their ancestors since it is believed that the course of one's life is influenced by the stance of one's ancestors. Peculiar practices are likewise observed to put a stop to epidemics or to deter illnesses.

Similar findings have been documented in the Quality of Life literature. Robinson, (2004) in a study of older adults and sexuality found positive correlations between quality of life and health status as well as intimacy and sexual activity. She reported that there is a 0.465 increase in the predicted quality of life scores when an individual is healthy. In addition, a small but significant 0.003 unit increase in predicted quality of life scores was observed when there is a one unit increase in the sexual activity aspect. She further cited a study done in 2003 by Bowling et al. who found out that a significant percentage of the participants in their study indicated that health was essential to a "good" quality of life.



This reflects efficient implementation of the policies created by the City government to nurture the health of the Muslim traders. This also reflects a duly proportioned fund for health care, thus indicating good governance on the part of the City local government unit and success of the first and foremost mission of Iloilo City, which shall be a leader in the practice of participatory governance that will speed up and sustain growth and development, in order to open up more and better opportunities for all, and to significantly expand and improve infrastructure, thereby securing a dynamic, safe, peaceful and healthy environment conducive to learning, sports and eco-cultural tourism, <http://www.iloilocity.gov.ph/vmc.php>

Observation on the boxplots shows that the range of the weighted scores in the health and functioning domain of the quality of life index (QLI) were observed to vary between variables included in the study

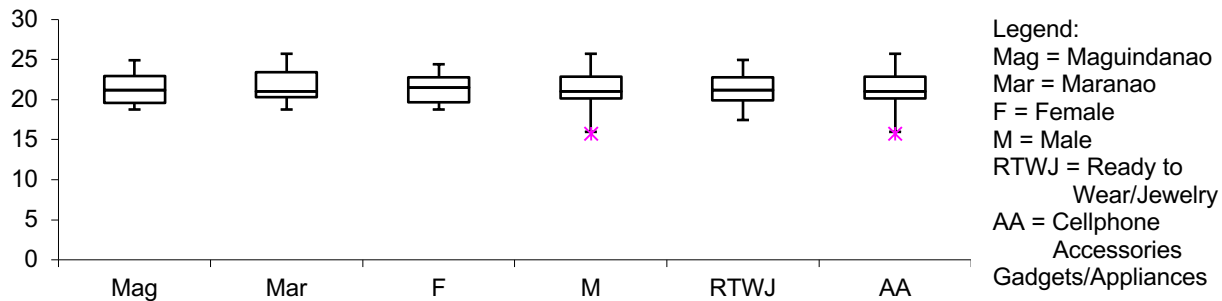


Figure 2. Boxplot presentation of the weighted scores of Muslim traders in Iloilo City in the Health and Functioning domain of the quality of life.

#### Social and Economic Domain

*The range and means of the weighted scores for the social and economic domain of Quality of Life of Muslim Traders in Iloilo City.*

Results revealed that there is none of the individual has a mean score below 15 in this subdomain of the quality of life indicating high level of satisfaction was noted between variables included in the study. Further, outliers were noted in the group of Maranao, male, and those engaged in business in cellphone accessories/gadgets and appliances. Within these groups, some individual have too high level of satisfaction in social and economic domain of the quality of life index of the Muslim traders in Iloilo City.

In evaluating the quality of life of Muslim traders in Iloilo City with respect to the social and economic life domain, results revealed high satisfaction and contentment with their friends, the emotional support they get from people other than their family, their neighborhood, home, having a job or not having a job, educational attainment, and financial needs, (Ferrans & Powers, 1984 & 1998).

Generally, high satisfaction and contentment were noted in social and economic domain of the lives Muslim traders in Iloilo City.

Figure 3 showed that results of the weighted mean scores of Muslim traders with respect to their social and economic domain

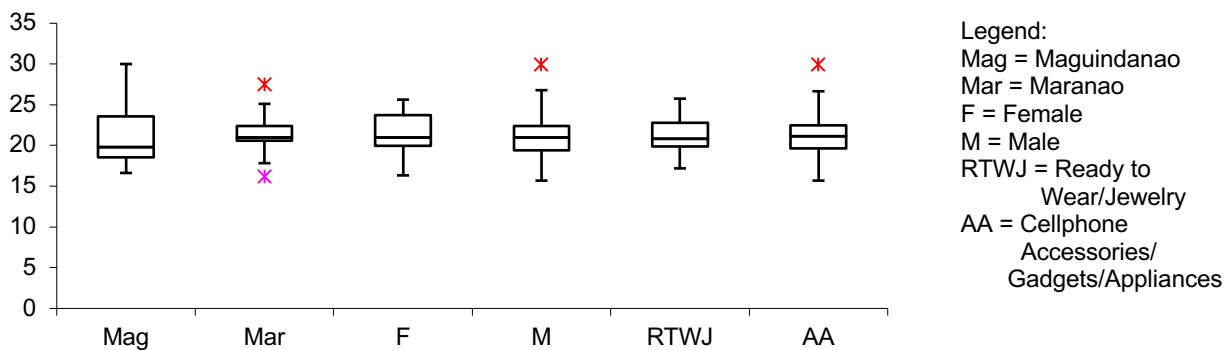


Figure 3. *Boxplot presentation of the weighted scores of Muslim traders in Iloilo City in the Social and Economic domain of the quality of life index*

#### Psychological and Spiritual Domain

*The range and means of the weighted scores for the social and economic domain of Quality of Life of Muslim Traders in Iloilo City.*

In evaluating the quality of life of Muslim traders in Iloilo City with respect to the Psychological and Spiritual life domain, results revealed high satisfaction and contentment thus giving them peace of mind and general happiness as well as satisfaction and contentment with the personal goals that they are able to achieve, their appearance, and their selves in general, (Ferrans & Powers, 1984 & 1998).

Overall, they were observed to have high levels of life satisfaction with regard to the psychological and spiritual domains of their quality of life. A number of upper outliers were noted in all variables except the female group of Muslim traders indicating that some of the individuals have to have too high level of satisfaction. On the other hand, number lower outliers were also noted in all variables except the Maranao and female group of Muslim traders indicating average level of satisfaction and contentment with their psychological and spiritual domain of the quality of life index.

These results are in agreement with one of the findings of Ferriss (2004), in his study on Religion and the Quality of Life, that happiness is found to be associated with the frequency of attendance at religious services, with denominational preference, and with doctrinal preference, hence arriving at a conclusion that "religion may explain a purpose in life that fosters well-being."

Further, the result reflects strict observance of the core values of Iloilo City that thrives deeply, conscious of our accountability to God centered on family and community, with a commitment to efficiency and excellence nurturing an entrepreneurial spirit and good governance founded on integrity and a responsive citizenry.

<http://www.iloilocity.gov.ph/vmc.php>

Figure 4 showed the results on psychological and spiritual domain of quality of life of Muslim traders in Iloilo City between variables.

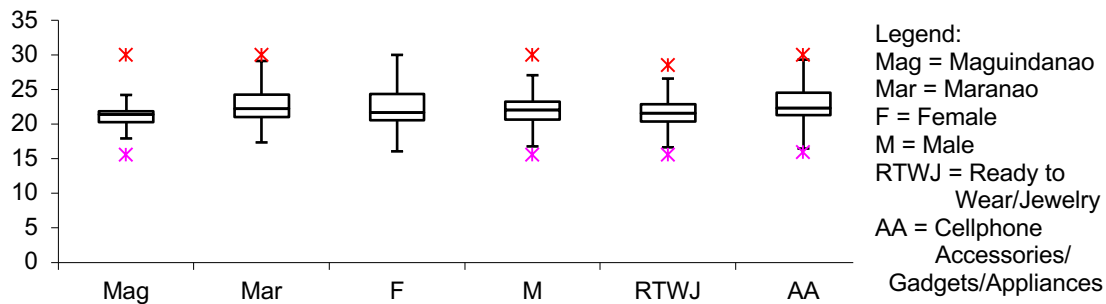


Figure 4. *Boxplot presentation of the weighted scores of Muslim Traders in Iloilo City in the Psychological and Spiritual Domain.*

#### Family Domain

*Range and means of the weighted scores for the family domain of Quality of Life of Muslim Traders in Iloilo City.*

Assessment of satisfaction with regard to the Family life domain also reveals a high satisfaction with their family's health, children, family happiness, spouse/ lover/partner, and the emotional support from their family, (Ferrans & Powers, 1984 & 1998). Observation of the boxplots shows that all the Muslim traders grouped according to variables have high levels of satisfaction with their family life as shown by their weighted scores which are above 15. An outlier was observed in the group of type of business (Cellphone accessories/gadgets and appliances) indicating too high level of satisfaction and contentment in their family domain.



The family is the basic foundation that is vital to the structure of society, (<http://en.wikipedia.org>. ) thus, social processes such as mutual trust among members, support and shared expectations, (Sampson, 2003) despite difficult family situations can also be assumed to be in operation. These social processes affect the family's health and happiness.

A high level of satisfaction with respect to the family aspect of quality of life, as found in this study, indicates that the said social processes are functioning in the families of the Muslim traders in Iloilo City. Generally, the results imply that Iloilo City community and the Muslim traders live harmonious relationship and promote peace despite of differences in culture and religious views.

The weighted scores of the Muslim traders in the family domain across variables are presented in Figure 5.

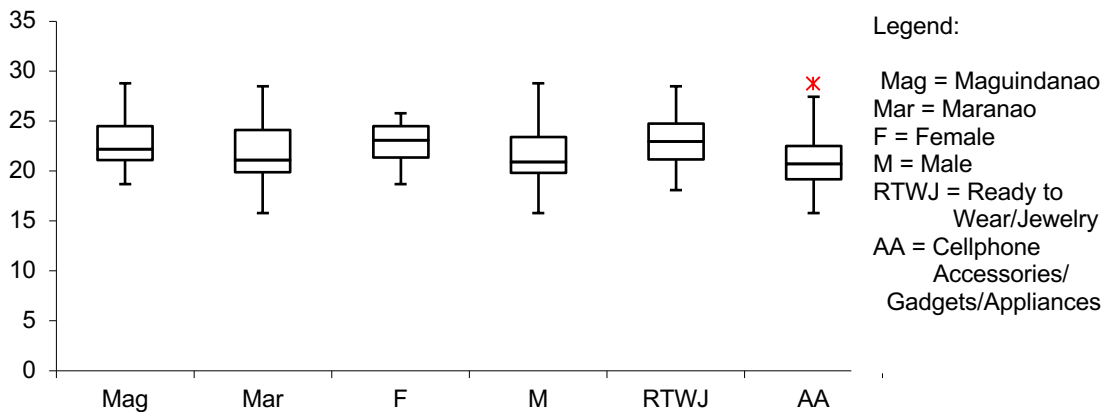


Figure 5. *Boxplot presentation of the weighted scores of Muslim Traders in Iloilo City in the family domain of quality of life index.*

## Conclusions

The Muslim traders have a high degree of satisfaction and contentment of their quality of life living in urbanized city of Iloilo. They accepted their present conditions in health and functioning domain, social and economic domain, and psychological and spiritual domain as well as family domain of quality of life index. This reflects efficient and effective implementation of the policies created by the City government to its citizens especially to the Muslim migrants from Mindanao area. This also reflects a duly proportioned fund allotted for health care, socio-cultural, education, and religious aspects, thus indicating good governance on the part of the City local government unit and success of the mission of Iloilo City, which shall be a leader in the practice of participatory governance that will speed up and sustain growth and development, in order to open up more and better opportunities for all, and to significantly expand and improve infrastructure, thereby securing a dynamic, safe, peaceful and healthy environment conducive to learning, sports and eco-cultural tourism.

The Muslim traders prefer to live permanently or temporarily and establish business in the City for peace and security as long as business opportunities and livelihood are concerned. Further, they can easily adapt to the environment with good reputation and to have their own place of worship despite of living in a purely Christian community.

## Recommendations

The City government should create/establish a Muslim Affairs Office to document the permanent and even temporary residents of Iloilo City. This will serve as a link between the Muslim community and the local government unit. In addition, the City government should establish business center for identification of a Muslim Economic activities for revenue purposes. Likewise, participation and involvement of Muslim brethren to various programs and activities and projects of local government unit in the City of Iloilo should be encouraged to strengthen camaraderie and promote unity between Christians and Muslims community. These will lead to



universal peace and order, security and protection as well as to preserve the culture, traditions and practices and beliefs of both parties.

Further, data should provide some encouragement to policy makers of Iloilo City since it recognizes the importance of improvements in public services, access to markets, and the ability to consume and invest, the differences in priorities it identifies challenges 'one-size fits all' policies.

Furthermore, it is recommended that the City government should invite Muslim community leaders to encourage and assist them through trainings, conferences and seminars to inspire their followers from time to time.

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## **Information And Communication Technology (ICT) Utilization In Technical-Vocational Schools In Region V: Basis For Five-Year ICT Development Plan**

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### **Abstract**

The study was conducted focused on the utilization of Information and Communication Technology in Technical-Vocational Schools in Region V, Philippines, School Year 2011-2012. It determined the profile of teachers, adequacy of ICT equipment, competence of teachers and their relationships. The data were gathered through a questionnaire-checklist formulated by the researcher. The validity and reliability of the instrument was ensured.

Findings revealed that majority of the teachers are 26 years old and above. Three-fourths of them have attended very minimal number (1-3 times) of ICT – related trainings. Eighty four percent of the teachers have master's degree; fifty percent of them have served the government for more than 10 years; fifty-eight percent were occupying Teacher I position; twelve percentage designated to different administrative functions. There is a fairly adequate ICT tools and equipment and the teachers are competent in working with words processors only. Furthermore, the age of teachers and the competences is significantly related in using ICT tools and equipment.

The researcher concluded that there is a dearth of ICT-related trainings for teachers in all age level and ICT tools and equipment should be procured to sustain the development of competence among teachers.

It is recommended therefore to implement the proposed ICT development plan and the conduct of further research on the extent of utilization of ICT tools and equipment along actual teaching – learning process.

**Keywords:** Information, Communication, Technology, ICT, Technical-Vocational, Utilization.

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## **Introduction**

Information and Communication Technology (ICT) has become and will continue to be an integral part of the day to- day life of every Filipino across all levels of our society. In the last two decades, we have witnessed a tremendous leap in the development of information and communication technology. The invention of online communication in the eighties through emails, then followed by worldwide web in the nineties has changed the way we communicate and search for information.

In education where transfer of learning is expected to occur in any education settings, the availability of online resources and many options on how the education materials can be delivered have also affected the way we learn and teach. In fact, the young generations are experiencing that ICT becomes an integral part of their daily life, from communicating to their peers, accessing entertainments and games, to completing their school works. In most part of the world, it is hard to imagine now to live without using ICT (Paryono and Quito 2010).

However, technology in itself does not support learning. It can play out its full potential only when it is well integrated into learning environment (Otto & Albion 2004; Voogt & Knezek 2008). The availability of ICT is not, in itself, sufficient to enhance learning and teaching and in turn, increase attainment. While ICT can be motivating and engage students in learning more effectively, sustained impact depends on the ability of the teacher to integrate or embed ICT into the learning experience of students in such a way that the potential of the technology is fully realized (Condie & Munro 2007).

When effectively integrated, technology can provide students with engaging opportunities to find and utilize current information and apply academic skills for solving real-world problems. Integration of ICT into vocational instruction can provide schools with potential access to the world of work outside of the school (Jawarneh, 2007) and allows teachers to design useful learning environments that emphasize learning in the context of real world activities for vocational students.

Teachers' perceptions are very important to the success or failure of integrating ICT into instruction, and they play a significant role in this process (Kuşkaya- Mumcu & Koçak-Usluel 2010). Vocational teachers should model the appropriate uses of ICT resources in the workshop and classroom to help equipping their students with the necessary knowledge and skills to use these tools effectively in their working life (Jawarneh et al. 2007; Kuşkaya- Mumcu & Koçak- Usluel (2004).

In the Philippines, teachers were found to be good at basic computer operations (word processing and spread sheet, PP Presentation, web browsing, email, chat, and mobile phone use but poor at web development, multi-media editing, game development, E-Learning Management Systems (E-LMS). Technical-Vocational schools in the country, specifically in Region V are not exempted from this demand of utilizing ICT in teaching, and so, teachers are expected to have knowledge and skills along ICT, for them to keep abreast with this primary demand for ICT use in teaching, hence, this study, which evaluated the status of ICT utilization by the teachers in Technical-Vocational schools in Region V.

## **Objectives of the Study**

This study focused on the evaluation of various aspects in relation to the utilization of Information and Communication Technology (ICT) by the teachers of Technical-Vocational schools in Region V for School Year 2011-2012, in order to establish empirical findings that will serve as input for the formulation of an ICT development plan with the end purpose of preparing the teachers to fully embrace the demands of ICT use in teaching. More specifically, it sought answers to the following questions:

1. What is the profile of the teachers of Technical- Vocational schools in Region V in terms of age, educational attainment, relevant training/seminars attended along ICT, teaching experience, and position/designation held?
2. What is the level of adequacy of ICT tools and equipment available for use in teaching at the different Technical-Vocational schools in Region V?
3. What is the level of competence of teachers in Technical-Vocational schools in using ICT in their performance of ICT-related school activities?
4. Is there a significant relationship between the age of teachers and the level of teachers' competence in using ICT tools and equipment?



5. Is there a significant relationship between the level of adequacy of ICT tools and equipment and the level of competence by the teachers in using these tools and equipment?

### Materials and Methods

This study employed descriptive evaluative research method because this has the purpose of gathering data based on the descriptive evaluation, characterization and perceptions of the respondents.

The respondents of the study were the teachers of the twenty (20) Technical-Vocational schools in Region V. The sample size was determined using the Lynch, et.al. (1974) formula. After the sample size was determined, a stratified proportional sampling procedure was used to determine the number of respondents per school. In the conduct of the study, a convenient sampling technique was utilized by administering questionnaires randomly among teachers who are available at the time of the data gathering. It included Libon Agro-Industrial High School,(18) Tiwi Agro- Industrial School,(16) Barcelonita Fisheries School (8), Bikal Fisheries School(5), Camarines Sur National High School(19), Juan F. Trivinio Memorial High School(12), Partido Agro – Industrial National High School(7), Ragay National Agricultural and Fisheries School(16), Rinconada National Technical-Vocational School(20), Foilan Lopez Technical – Vocational School(5), Mercedes School of Fisheries(5), Caramoran School of Fisheries (6), Pandan school of Arts and Trades(16), San Andres Vocational School, Masbate School of Fisheries (21), Palanas National Agricultural High School (5), Tito R. Espinosa Memorial National Agricultural School (7), Casiguran National Technical Vocational School(18), Donsol Vocational High School (12) and Magallanes National Vocational High School(8). The sample size is 239 out of 638 total population.

The instrument used in gathering data was a questionnaire- checklist formulated by the researcher. The content related validity (Fraenkel & Wallen 1994) of the instrument was determined by the evaluation of two sets of judges. The first set was composed of the ICT instructors of DEBESMSCAT. Their suggestions were incorporated in the first revision of the instrument and the revised questionnaire was again subjected to evaluation by the second set of judges which was composed by the Program chair of ICT Department of DEBESMSCAT and other college offering ICT courses in the province such as Osmena Colleges and ACE with at least two (2) raters from the respective schools. Their suggestions were considered and incorporated during the second and final revision of the questionnaire.

The rating scale has indicated appropriateness of the format of the rating scale is very much valid having obtained a weighted mean of 4.2. The comprehensiveness of the terminologies used and the adequacy of the items representing the main item were also interpreted as very much valid having each obtained a weighted means of 4.0, 4.2 and 4.0, respectively.

To ensure the reliability of the instrument, a dry-run was conducted. The first dry-run was done by administering it to 10 teachers who were not considered as respondents of the study from the Masbate School of Fisheries which is a Technical - Vocational school in the province. After a lapse of two weeks, the same instrument was re-administered to the same group. The responses during the first dry-run were correlated with the second dry-run using the Spearman Rank Correlation Coefficient. Data show that all of the items submitted for reliability testing garnered a computed rank coefficient of from 0.92 – 0.96 with an average obtained rank coefficient of 0.94, interpreted as highly reliable.

The statistical tools employed in the study included frequency, percentage and rank order, weighted mean, spearman rank correlation coefficient, 5-point Likert scale, and Lynch's formula. It also adopted the simple linear regression correlation utilizing the SPSS software.

### Results and Discussions

#### 1. Profile of Teachers in Technical-Vocational Schools in Region V

Table 1 presents the profile of teachers, as to age profile, 36% of the teachers are within the age bracket of 36-45 years of age, 30% are 46 years old and above, 29% are within 26- 35 years old and only 5% are 25 years old and below. It can be gleaned from the data presented that the teachers in Technical- Vocational schools in Region V



are dominantly experienced teachers and can be considered at their most productive years in service and personal development. These findings imply that initiatives on the part of the administration and a heightened personal commitment on the part of the teachers to enhance their levels of competence in using these ICT facilities are of paramount importance, based on the result of the study that the higher the age of the teachers are, the lower their competence level in using ICT facilities and equipment is. These findings conform to the results of the studies of Moses (2006) Summak, S. Samancioğlu, M. (2011) Rakes et al (2006), Paryono and Quito(2010), Kuşkaya-Mumcu, F & Koçak-Usluel, Y (2004), Kuşkaya-Mumcu, and F & Koçak-Usluel, Y (2010) which clearly indicated that younger teachers had the highest level of personal computer use and as years of teaching experience increased, the overall personal computer use level decreased. On the contrary, studies of William et al and Jejede (2006) which focused on the relationship between the age and the attitude of teachers towards ICT use revealed that attitudinal difference towards ICT use was not found across age groups.

As to ICT related trainings attended by the teachers, 74% of the respondents have attended only 1-3 trainings, 18% have 4-6 trainings, 3% has 7-9 trainings and 5 % have 10 or more trainings. The data obviously imply that there is a dearth of ICT related trainings that need to be catered among the teachers in Technical- Vocational schools as part of ICT enhancement program. This view is shared by New House (2002), Jung, I. (2005), Saud et al (2011), Olulobe (2006) and Balanskat et al (2006) in their studies which highlighted appropriate ICT trainings among teachers.

Table 1. *Profile of Teachers In Technical-Vocational Schools in Region V*

| AGE                                  | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| Less Than 25 years old               | 10        | 5%         |
| 26 – 35 years old                    | 57        | 29%        |
| 36 – 45 years old                    | 59        | 30%        |
| 46 years and above                   | 71        | 36%        |
| <b>NO OF ICT - RELATED TRAININGS</b> |           |            |
| 1 – 3                                | 93        | 74         |
| 4 – 6                                | 23        | 18         |
| 7 – 9                                | 4         | 3          |
| 10-more                              | 6         | 5          |
| Total                                | 126       | 100        |
| <b>EDUCATIONAL ATTAINMENT</b>        |           |            |
| With Masters units                   | 119       | 84         |
| Masteral degree holder               | 14        | 10         |
| With Doctorate units                 | 7         | 5          |
| Doctorate degree holder              | 2         | 1          |
| Total                                | 142       | 100        |
| <b>LENGTH IN SERVICE</b>             |           |            |
| Less than 4 years                    | 42        | 26         |
| 5 – 9 years                          | 25        | 15         |
| 10 – 14 years                        | 30        | 18         |
| 15 – 19 years                        | 30        | 18         |
| 20 & Above                           | 37        | 23         |
| Total                                | 164       | 100        |
| <b>POSITION</b>                      |           |            |
| Teacher I                            | 100       | 58         |
| Teacher II                           | 22        | 13         |
| Teacher III                          | 34        | 20         |
| Master Teacher I                     | 15        | 9          |
| MT II                                | 1         | 1          |
| With Designation                     | 21        | 12         |
| Total                                | 172       | 100        |

As to educational attainment, only 1% of the Technical-Vocational teachers are doctorate degree holders, 5 % have doctorate units, 10 % are Master's Degree holders, and most of them (84%) are with Masters' Degree units.



The data deduce that the faculty development program of Technical- Vocational schools are not fully functional and hence requires the joint initiatives of both the teachers and the administration of these schools to enhance the educational preparation of the members of the faculty of instruction.

As to length of service, data show that 26 % of the teachers of Technical- Vocational schools in Region V are less than 4 years in service; 23 % are 20 years and above; followed by 10-14 years (18 %) and 15-19 year (18 %), while 15% are 5-9 years in service. These findings infer that more than 50% of the teachers are having length of service within the range of from 10- 20 years and above, which justifies the high age profile of the teachers. The findings imply that ICT use in teaching in these schools requires effective and functional strategies in order to improve its utilization and address the phenomena established by this study that the older the age of teachers is, the lower is their competence level in using ICT facilities. This result is similar to the findings of Kuşkaya-Mumcu & Koçak-Usluel (2004) that computer usage of teachers declines while their age and years of experiences increase.

As to position titles of the teachers in Technical- Vocational schools, data show that majority of them are occupying Teacher 1 (58%) position, followed in descending order by Teacher 11(20%); Teacher 11 (13%); Master Teacher 1 (9%); Master Teacher 11 (1%) and 12% are having designations. This job phenomenon can be attributed to the slow educational development among the teachers of these schools, as educational qualification has a high merit on promotion. Continuous learning is the best means of acquiring more knowledge that can be imparted to the student clientele by the teachers, hence the need for advance education.

## 2. Levels of Adequacy of ICT Tools and Equipment Available for Use by the Teachers in Technical-Vocational Schools in Region V

Table 2 presents the levels of adequacy of ICT tools and equipment which is found “adequate” is the internet connection having a weighted mean of 2.0. This means that the use of prepaid broadband (Tattoo, smartbro, etc.) is adequately available and used in the schools though most of the Technical-Vocational schools have internet connectivity.

Table 2. *Levels of Adequacy of ICT Tools and Equipment Available for Use by the Teachers in Technical-Vocational Schools in Region V*

| ICT Tools and Equipment            | Weighted Mean | Adjectival Rating |
|------------------------------------|---------------|-------------------|
| Personal Computer                  | 2.63          | Adequate          |
| Laptop/Notebook/ Handheld Computer | 2.45          | Fairly Adequate   |
| Internet Connection                | 2.80          | Adequate          |
| LCD Projector                      | 1.78          | Inadequate        |
| Software (e-learning kits/modules) | 1.94          | Fairly Adequate   |
| TV/CD/DVD Sets                     | 1.90          | Fairly Adequate   |
| Printers                           | 2.64          | Adequate          |
| Photocopier                        | 2.39          | Fairly Adequate   |
| Fax Machines                       | 1.90          | Fairly Adequate   |
| TOTAL                              | 2.28          | Fairly Adequate   |

It was also found out that printer and personal computer are “adequate” with weighted means of 2.64 and 2.63 respectively. This means, 60% of school reports and forms of teachers are printed using school-owned printers for free and an average ratio of 1:3 personal computer – student ratio is available for use in the school. This adequacy of computer units and printer can be attributed to the computer package specially provided to all tech-voc schools nationwide under Batch 8 of DepEd Computerization Program which is composed of 50 computer units in network and a printer. Some tools and equipment such as laptop/handheld computers, photocopier, software (e-learning kits/modules), TV/CDs/DVD sets and fax machines were found to be “Fairly adequate” among tech-voc schools with a weighted mean of 2.45, 2.39, 1.94, 1.9 and 1.9 respectively. This results tell that only 40% of the teachers have personal laptop/handheld computers; 40% of the learning materials as well as test papers are reproduced using school-owned copier for free; software (e-learning kits/modules) are available in only 40% of the subjects; only 40% of the classrooms have installed CD/DVD/TV sets for instructional use; and the school sends/accepts information only through privately owned fax machines in nearby town/cities.



However, it was found out in the study that Technical-Vocational schools in Region V have “inadequate” LCD/ multimedia projector available for utilization in teaching garnering a weighted mean of 1.78. This only means that the average ratio of LCD to the number of classes in the school is 1:25. There were even schools which disclosed the unavailability of any multimedia projector in their schools. Results of studies conducted by Wee and Abu Bakar (2006) and Paryono and Quito (2010), support the findings of the present study that there is not enough ICT facilities available for instructional use. According to them, there is a need to update and upgrade ICT tools and equipment since technology is one of the fastest changing fields nowadays.

### 3. Levels of Competence of Teachers in Performing ICT- Related Activities in Technical-Vocational Schools in Region V

Table 3 presents the levels of competence of teachers in performing ICT- related activities. Results of the study revealed that teachers in Technical-Vocational schools in Region V were categorically found to be “very competent” in working with words only (Word Processing) with a weighted mean of 3.56, while, in majority of the ICT –related activities, they considered themselves “competent” with the weighted means ranging from 2.63 - 3.38. This includes operating a multimedia projector, 2.63; understanding pc hardware ,2.86; working with digital pictures, 3.0; operating system, 3.06; working with presentation(power point), 3.09; using internet, and playing movies and music, 3.10 respectively; working with numbers(spreadsheets/excel,3.31; and operating printer, 3.38; Furthermore, findings show that teachers in Technical - Vocational schools are “less competent” in using educational software, and in operating fax machine, having garnered weighted means of 2.47 and 2.04 respectively. This conforms to the findings in the Meta-analysis of Paryono and Quito (2010) which states that in the Philippines, teachers are found to be good at basic computer operation which includes word processing, and that of Jawarneh et al (2007) which claimed that word processing is the most widely used computer software in the classroom by vocational teachers.

Table 3. *Levels of Competence of Teachers in Performing ICT- Related Activities in Technical-Vocational Schools in Region V*

| ICT – Related Activities                 | Weighted Mean | Adjectival Rating |
|------------------------------------------|---------------|-------------------|
| Personal Computer/Laptop                 |               |                   |
| Understanding PC Hardware                | 2.86          | Competent         |
| Operating System                         | 3.06          | Competent         |
| Working with Words(Word Processing)      | 3.56          | Very Competent    |
| Working with Numbers(spreadsheets/excel) | 3.31          | Competent         |
| Working with Presentation(Powerpoint)    | 3.09          | Competent         |
| Playing movies and music                 | 3.10          | Competent         |
| Working with Digital Pictures            | 3.00          | Competent         |
| Using internet                           | 3.10          | Competent         |
| Using multimedia projector               | 2.63          | Competent         |
| Using educational software               | 2.47          | Less Competent    |
| Operating printer                        | 3.38          | Competent         |
| Operating photocopier                    | 2.90          | Competent         |
| Operating fax machine                    | 2.04          | Less Competent    |
| TOTAL                                    | 2.95          | Competent         |

### 4. Test of Significant Relationship Between the Age and Level of Competence in Using ICT Tools and Equipment by the Technical - Vocational Teachers in Region V

The computed value of  $r$  in testing the significant relationship between the age and level of competence of teachers in Technical- Vocational schools in Region V is 0.778, which means that age of the teachers is significantly related to the level of their competence in using ICT facilities and resources and categorically interpreted as having a strong negative correlation since the computed value falls between 0 and + 1. The null hypothesis is therefore rejected; instead, findings proved that there is really a significant relationship between age and level of competence in using ICT tools and equipment among teachers of Technical – Vocational schools in Region V. This is in contradiction with the findings in the study of Jegede about ICT competence of teachers in Higher education in Nigeria (2006) which he found no significant differences across age group.





Table 4. *Test of Significant Relationship Between the Age and Level of Competence in Using ICT Tools and Equipment by the Technical - Vocational Teachers in Region V*

ANOVA<sup>b</sup>

|   | Model      | Sum of Squares | Df | Mean Square | F    | Sig.              |
|---|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | 80.908         | 1  | 80.908      | .089 | .778 <sup>a</sup> |
|   | Residual   | 4566.806       | 5  | 913.361     |      |                   |
|   | Total      | 4647.714       | 6  |             |      |                   |

a. Predictors: (Constant), VAR00002

b. Dependent Variable: VAR00001

A cursory inspection of the given raw data justifies the result, as, the higher the age of the respondent teachers (46 years and above), the lower is the level of their competence in performing the various indicators of usage of the ICT tools and equipment, while on the other hand, the lower is the age of the teacher- respondents, the higher is their levels of competence in using ICT tools and equipment. Younger teachers used computer personally more than their older colleagues (Summak, S. and Samancioğlu, M. (2011). Same findings was revealed by Moses, RR (2006) where he indicated that younger teachers had the highest level of personal computer use and as years of teaching experience increased, the overall personal computer use level decreased.

#### 5. Test of Significant Relationship Between Level of Adequacy of ICT Tools and Equipment with Level of Competence of Using These Facilities Among Technical- Vocational Schools in Region V

The computed value of  $r$  in testing the significant relationship between levels of adequacy of ICT tools and equipment in Technical- Vocational schools in Region V with and levels of competence in using these by the teachers is 0.782 which means that the level of competence in using ICT tools and equipment by the teachers is significantly related with its adequacy, and categorically interpreted, as having a strong positive correlation since the computed value falls between 0 and + 1. The null hypothesis therefore is rejected; instead, the study found out that there is really a significant relationship between adequacy of ICT facilities and level of competence in using these facilities among teachers of Technical –Vocational schools of Region V. This is supported by Becta (2003) when he claimed that ICT resourcing is one of the five factors that influence the likelihood that good ICT learning opportunities will develop in schools.

Table 5. *Test of Significant Relationship Between Adequacy of ICT Tools and Equipment and Level of Competence of Using These Facilities Among Teachers of Technical-Vocational Schools in Region V*

ANOVA<sup>b</sup>

|   | Model      | Sum of Squares | Df | Mean Square | F    | Sig.              |
|---|------------|----------------|----|-------------|------|-------------------|
| 1 | Regression | .014           | 1  | .014        | .083 | .782 <sup>a</sup> |
|   | Residual   | 1.203          | 7  | .172        |      |                   |
|   | Total      | 1.217          | 8  |             |      |                   |

a. Predictors: (Constant), VAR00002

b. Dependent Variable: VAR00001

A detailed inspection of the given data justifies the result, as the overall average weighted mean obtained for the adequacy level of ICT facilities that are available for use by the teacher respondents is 2.28, interpreted as “fairly adequate”, while, on the other hand, the general weighted mean average for competency level in using these ICT facilities is 2.95, interpreted as “neutral” which categorically means at the border line between with and without competence.

## Conclusions

The following conclusions were drawn:

1. There is a dearth of ICT related trainings that are participated in by the teachers in all age level in Technical-Vocational schools. Teachers in Technical-Vocational schools in Region V have sluggish professional growth in both educational attainment and job promotion in relation to both their age and length of service.



2. There is fair adequacy of ICT facilities and equipment among Technical-Vocational schools in region V.
3. The teachers in Technical- Vocational schools of Region V are not fully equipped with the necessary competence in performing higher ICT –related activities as well as using more complicated ICT tools and equipment.
4. There is a significant relationship between age and level of competence in using ICT facilities among teachers of Technical –Vocational schools in Region V.
5. There is a significant relationship between adequacy of ICT facilities and level of competence in using these facilities among teachers of Technical –Vocational schools in Region V.

### Recommendations

The following recommendations were formulated by the researcher:

1. Initiatives on the part of the administration and a heightened personal commitment on the part of the teachers, especially the elder ones, to enhance their levels of competence in using these ICT facilities are strongly recommended.
2. Technical-Vocational schools in Region V should initiate functional teacher development program to provide opportunities for its teachers to advance their educational qualifications for professional growth and indirectly assure enhanced teaching- learning activities in these schools.
3. Intensive ICT – related trainings and initiatives be provided to the elderly teachers to develop their competence in using ICT tools and equipment.
4. Ample opportunities and support for teachers to be more exposed to ICT facilities for hands-on experience that would develop their skills and competence in using these tools and equipment is very much recommended to be given priority by the administrators of Technical- Vocational schools.
5. Provision of adequate ICT tools and equipment to be used for instructional purposes among Technical-Vocational schools in region V is highly recommended.
6. Future researches which will focus on the extent of utilization of ICT tools and equipment along actual teaching – learning activities with emphasis on the level of pedagogical/didactics skills of teachers is highly recommended.

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## Family Relationships of Maritime Graduates of the Palompon Institute of Technology

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### Abstract

This study was conducted to determine the family relationships of the respondents who graduated with the degree Bachelor of Science in Marine Transportation (BSMT) and Bachelor of Science in Marine Engineering (BSMarE) before they joined and after they graduated from the Maritime Education Upgrading Program of the Palompon Institute of Technology (PIT) – Royal Association of Netherlands Shipowners (KVNR) through a descriptive research method.

It was found out in the study that the quality of family relationships that kept family closely attached were not compromised thus considered healthy for the BSMT and likely healthy for the BSMarE even before the respondents have joined the upgrading program. Moreover, as the respondents already graduated from the program and already working onboard ships, it was found out that no amount of financial success could destroy the basic fundamentals of strong family relationships among Filipino families. Subsequently, as the respondents were always away from their families most of the times, yet this did not put the family relationships in peril. The respondents' families manifested that their family relationships remained very strong and healthy that speaks true to Filipino way of family life.

Data gathering was through several medium like the internet, the social media, mail delivery services, and by personally fielding the questionnaires. Sending the questionnaires through the identified mediums was done three times to give extra leeway for the respondents to acknowledge and return the filled-up survey questionnaires.

Keywords: family relationship, maritime education upgrading program, maritime graduates

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## **Introduction**

Family is the basic unit of governance in the Philippines way of life. It is in the family that children started to gain fundamentals in living and interacting with family members, relatives and the community. The family serves as the springboard towards success in life, in the community, and in the workplace in the future. To some extent, family defines of what we are and who we are. Filipino family way of living and or existence can be considered unique in a sense that a member of the family would willing to sacrifice one's future just for the sake of a sibling's or another member of the family to have his own successfully.

The Maritime Education Upgrading Program of the partnership of the Palompon Institute of Technology (PIT) and the Royal Association of Netherlands Shipowners (KVNR) offers an opportunity to its graduates to experience social and financial changes in their way of living, in a very short span of time, after they completed their studies in maritime education. The upgrading program serves as catalyst of change among graduates and their family in terms of socio-economic status as well as in their relationship with the family.

Many times it was observed that quality of family relationships among members of the family would be compromised or affected once member of the family found financial success. Any member of the family who gained financial success were often found the ones making the shots or decisions in the family practically breaking the usual closeness the ties that bound the family together. Sometimes, the normal father-head figure in the family would no longer be true with the emergence of any member of the family gaining financial success. To some extent, those who have money would dominate the family.

In some cases also, children who already gained financial success after they finished their studies ended up leaving or neglecting their parents. Others were observed becoming indifferent to their siblings. Family relationships were compromised because of success experienced by some members of the family.

As the PIT-KVNR MEUP offers its graduates an opportunity to experience abrupt change in life by gaining tremendous improvement in their social and financial way of living, such could compromise the quality of family relationships among members of the family, thus this study was conducted.

## **Statement of the Problem**

This study aimed to look into the family relationships of the graduates under the Maritime Education Upgrading Program (MEUP) of the Palompon Institute of Technology – Royal Association of Netherlands Shipowners (KVNR) covering the school years 2002-2003 up to 2007-2008.

Specifically, the study answered on the following questions: 1. what is the family relationships profile of the groups of respondents of the study: 1.1. upon joining the program; 1.2. after graduating the program:

## **Methodology**

The descriptive method was used to look into the family relationships of the graduates of PIT from school years 2002-2003 up to 2007-2008.

The subjects/respondents of this study were limited to the marine transportation and marine engineering Batch 2 to 7 graduates of PIT from school years 2002-2003 to 2007-2008.

A total of 1,133 graduates were considered the total population with 763 marine transportation and 370 marine engineering graduates. Using the Sloven formula, this study has a total respondents of 296 distributed proportionately, as follows: BSMT = 199; and BSMarE = 97.

The research venue for this study was also the College of Maritime Education (COMEd) of the Palompon Institute of Technology. The school is a chartered state college located in the municipality of Palompon, Leyte, Philippines.

The researcher used the researcher-made survey questionnaire to look into the family relationships of graduates of the PIT-KVNR upgrading program. Both groups of respondents have used the same set of survey questionnaire. The instrument covered questions about family relationships before the respondents entered the program and after they graduated from the program. The 5 – point scale was used to measure how the



respondents felt the situations or consequences on family relationship, as follows: 5 – Very Much Felt; 4 – Highly Felt; 3 – Moderately Felt; 2 – Slightly Felt; and 1 – Not At All Felt.

The instrument also underwent three major revisions where comments, suggestions and recommendations of various authorities in the field of research were then considered and incorporated to the fourth revision of the instrument in order to make it more responsive to the needs of the study and of the time. To test for the reliability of the instrument, the fourth revision of the survey questionnaire was subjected to a “test-retest” dry run stage to 18 non-respondents PIT maritime education graduates who were the ones selected to fill out the questionnaires to determine if it could elicit answers or data necessary for the study without any confusion of the survey questions.

Results of the ‘test-retest’ testing for reliability was computed with the use of Spearman rank different correlation coefficient at  $r_s = 0.882$  (high relationship). This indicated that the responses gathered during the dry run were reliable.

Data gathering was through several medium like the internet, especially the social media, mail delivery services, and by personally fielding the questionnaires. Sending the questionnaires through the identified mediums was done three times to give extra leeway for the respondents to acknowledge and return the filled-up survey questionnaires. After three send-offs of survey questionnaires and still no acknowledgement for its receipt the concerned respondent/s were already considered non-responding respondents.

To describe the respondents’ level of *how they felt* the different situations or consequences in life that describe their relationship with their family, the following ranges of mean values and qualitative description were used, as follows:

| Scale | Qualitative Description | Interpretation                                                                   |
|-------|-------------------------|----------------------------------------------------------------------------------|
| 5     | Very Much Felt          | - the situation or consequence has been realistically felt at the highest level. |
| 4     | Highly Felt             | - the situation or consequence has been realistically felt at higher level.      |
| 3     | Moderately Felt         | - the situation or consequence has been realistically felt at the average level. |
| 2     | Slightly Felt           | - the situation or consequence has been realistically felt below average level.  |
| 1     | Not At All Felt         | - the situation or consequence has not realistically been felt at all.           |

## Results and Discussion

Table 1 shows the level of family relationships between the respondents and his/her parents and siblings before joining the upgrading program.

The data showed that responses attributed to the BSMT respondents generally were very high based on the overall weighted mean of 4.44 which was qualitatively interpreted as “Very Much Felt.” It means that the family relationship prevailing within the family circles of the respondents’ families has been realistically felt at the highest level. However, among the indicators, the indicator for the *concern with the safety and welfare of every member of the family is practiced* got the highest weighted mean at 4.58, interpreted “Very Much Felt” and the indicator *we always have quality time for family bonding* got the lowest mean at 4.18, interpreted “highly felt.” These findings imply that the family relationships among the BSMT groups of respondents were very healthy that kept the family closely bonded with tender, love and care for everybody.



Table 1. *Family Relationship Before Joining the Upgrading Program*

| Indicators                                                                         | BSMT |     | BSMarE |     |
|------------------------------------------------------------------------------------|------|-----|--------|-----|
|                                                                                    | WM   | I   | WM     | I   |
| 1. Godliness is a virtue in the family.                                            | 4.46 | VMF | 4.16   | HF  |
| 2. Love is very strong in the family.                                              | 4.45 | VMF | 4.17   | HF  |
| 3. Understanding one another is very strong in the family.                         | 4.51 | VMF | 4.08   | HF  |
| 4. Concern with the safety and welfare of every member of the family is practiced. | 4.58 | VMF | 4.15   | HF  |
| 5. Friendship is very strong in the family.                                        | 4.48 | VMF | 4.15   | HF  |
| 6. Everybody in the family is open for suggestions.                                | 4.32 | HF  | 4.03   | HF  |
| 7. Respect with one another in the family is observed always.                      | 4.48 | VMF | 4.22   | VMF |
| 8. There is no rivalry among family members.                                       | 4.43 | VMF | 4.24   | VMF |
| 9. We live within the family's means of living.                                    | 4.46 | VMF | 4.28   | VMF |
| 10. Sharing of ideas and beliefs is practiced within the family.                   | 4.40 | VMF | 4.07   | HF  |
| 11. We always have quality time for family bonding.                                | 4.18 | HF  | 3.98   | HF  |
| 12. Helping one another in the family is highly practiced.                         | 4.49 | VMF | 4.18   | HF  |
| 13. We are contented for what we only have in the family.                          | 4.43 | VMF | 4.26   | VMF |
| Overall Weighted Mean                                                              | 4.44 | VMF | 4.15   | HF  |

Legend: WM = Weighted mean; I = Interpretation; VMF Very Much Felt; HF = Highly Felt

Moreover, responses attributed to the BSMarE respondents have manifested a lower overall weighted mean at 4.15, interpreted as "Highly Felt." This means that the situations or consequences with regards to how the family relationship within the family circle of the respondents has been realistically felt at higher level. Subsequently, among the indicators, the indicator *we live within the family's means of living* got the highest weighted mean at 4.28, interpreted as "Very Much Felt" and the indicator *we always have quality time for family bonding* got the lowest weighted mean at 3.98, interpreted as "Highly Felt." The finding implies that the family relationship among BSMarE group of respondents was likely healthy.

Table 2 shows results regarding how the respondents have engaged themselves with their families in terms of family relationships after they have graduated from the program and were already gainfully employed onboard ships.

The data showed that the both BSMT and BSMarE respondents have answered very high responses in all the indicators as manifested by the overall weighted means at 4.44 and 4.28, respectively, both were qualitatively interpreted "Very Much Felt." Except for one indicator, "*we always have quality time for family bonding*," which obtained the lowest weighted mean at 4.18 for BSMT, and 4.13 for BSMarE, both were interpreted as "Highly Felt," the rest of the indicators were rated by the respondents from the BSMT and BSMarE groups with very high weighted means which were qualitatively interpreted as "Very Much Felt."

Results implied that the family relationships between the respondents and their families remained healthy and were not really compromised in spite of the respondents being away from the families most of the times.

Table 2. *Family Relationship After Graduating from the Upgrading Program*

| Indicators                                                                         | BSMT |     | BSMarE |     |
|------------------------------------------------------------------------------------|------|-----|--------|-----|
|                                                                                    | WM   | I   | WM     | I   |
| 1. Godliness is a virtue in the family.                                            | 4.46 | VMF | 4.28   | VMF |
| 2. Love is very strong in the family.                                              | 4.45 | VMF | 4.33   | VMF |
| 3. Understanding one another is very strong in the family.                         | 4.51 | VMF | 4.24   | VMF |
| 4. Concern with the safety and welfare of every member of the family is practiced. | 4.58 | VMF | 4.28   | VMF |
| 5. Friendship is very strong in the family.                                        | 4.48 | VMF | 4.31   | VMF |
| 6. Everybody in the family is open for suggestions.                                | 4.32 | VMF | 4.18   | HF  |
| 7. Respect with one another in the family is observed always.                      | 4.48 | VMF | 4.31   | VMF |
| 8. There is no rivalry among family members.                                       | 4.48 | VMF | 4.40   | VMF |
| 9. We live within the family's means of living.                                    | 4.46 | VMF | 4.36   | VMF |
| 10. Sharing of ideas and beliefs is practiced within the family.                   | 4.40 | VMF | 4.19   | HF  |
| 11. We always have quality time for family bonding.                                | 4.18 | HF  | 4.13   | HF  |
| 12. Helping one another in the family is highly practiced.                         | 4.49 | VMF | 4.32   | VMF |
| 13. We are contented for what we only have in the family.                          | 4.43 | VMF | 4.33   | VMF |
| Total Weighted Mean                                                                | 4.44 | VMF | 4.28   | VMF |



The findings implied that in spite of the tremendous changes in the monthly income profile of the groups of respondents yet how these groups of respondents have engaged, maintained and sustained their normal or usual way of wholesome, strong and happy family bond were not affected in any way as manifested in the results of the study which indicated that there was no difference between parents and graduates on their family relationships before they joined the program and after they graduated from the program. Put in another way, the tremendous positive changes in their monthly income profile have never affected family relationships between the parents, siblings, and the graduates of PIT-KVNR upgrading program.

### **Findings**

1. Family relationships of the two groups of respondents before joining the upgrading program were found to be healthy for the BSMT respondents and likely healthy for the BSMarE respondents.
2. Family relationships of the two groups of respondents after graduating from the PIT-KVNR MEUP were found to remain healthy and not being compromised in spite of the respondents being away from the families most of the times.

### **Conclusions**

Moreover, family relationships for Filipino families prove to be the significant ties that keep family members closely bonded through 'thick and thin.' This was proven in the study where family relationships of the two groups of respondents manifested to be healthy even when these families were financially troubled due to poverty. And when the financial profile of these respondents significantly improved as manifested by the extremely high salary ranges these respondents have been receiving after they graduated from the MEUP. No amount of financial success or stability resulting from graduating the maritime program could destroy the very strong foundations of family relationships among families of the respondents.

The study even showed that in spite of the tremendous financial improvement the families of the respondents have presently experiencing, the quality of family relationships that kept them closely attached were not even compromised. Their family relationships remained very strong healthy that speaks true to Filipino way of family life.

### **Recommendations**

1. Provide spiritual advisers to the maritime students even before they would graduate from the program to help them spiritually and emotionally adjusted to the kind of life away from their loved ones most of the times.

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## Managing Change Capabilities Of School Heads: Input To Effective Change And Development In The Educational System

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### Abstract

The study assessed the managing change capabilities of school heads in the province of Masbate, Philippines. Specifically, it sought answers to the level of change management skills of the elementary and secondary school heads along; understanding change, planning change, implementing change, consolidating and monitoring change (based on Heller model) as well as the significant relationship of these skills.

The study used the descriptive survey method of research using the Heller's scoring model as well as the interpretation for the skills in managing change. The respondent-school heads in the whole province (N=190) were completely enumerated.

Results showed that secondary school heads obtained a total score of 19,681 and were 'skilled agents of change' in understanding, implementing, consolidating and monitoring change; while in planning, they only 'understand the need for change.' On the other hand, elementary school heads obtained a total score of 17,233 considered as 'skilled agents' in implementing change; while they only rated to 'understand the need for change' along understanding, planning and consolidating and monitoring change based on the Robert Heller Scoring Model. The relationship of these skills obtained a value of 27.949 interpreted as with 'highly significant' result.

The researcher concluded that the school heads in the province of Masbate particularly the secondary school heads are generally receptive and have positive approach to change making them skilled agents of change.

Recommended therefore to utilize the expertise of these school heads in implementing reforms and change in the educational system and to conduct similar studies among school heads using different assessment tools.

Keywords: Managing Change, School Heads, Masbate, Educational System

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## Introduction

Change is the single most important element of successful business management today. Adapting to the ever-changing present is essential for success in the unpredictable future. To remain competitive in increasingly aggressive markets, organizations and individuals have to adopt a positive attitude to change. Ignoring or trivializing a changing trend can be costly, so managing changes teaches managers how to be one step ahead of rivals, set trends, and lead change in order to survive. Techniques for planning and implementing change, consolidating and monitoring of results are important. Change affects every aspect of life, taking a proactive approach to change is the only way to take charge of the future, either as an individual or as an organization. (Heller, 1998)<sup>1</sup>.

Department of Education (DepEd) in particular, is an organization which is very prone to dynamic changes. It is an organization which is responsible of developing the human resources who are responsible of what the society is at present and what it is in the future. It is on this challenge and responsibility that the DepEd is continuously addressing the call for change and development along its different aspects of operation to cope up the fast-changing demands and needs of the global society. These aspects includes among others, the curriculum of the different programs, capability building among teaching personnel, leadership, fiscal management, laboratory facilities, technology and even physical facilities. The country's education highway visually feature how these areas are to be developed, but no matter how excellent are these plans, the writer has a notion that the realization of development is dependent on how well the change management skills of the school administrators or school heads in their respective schools are carried out effectively and efficiently, hence this study.

## Statement of the Problem

The main focus of the study was to assess the change management skills of school heads in the province of Masbate. The result shall be an input to effecting change and development in the school system. Specifically, it sought answers to the following inquiries:

1. What is the level of change management skills of the Secondary School Heads in the province of Masbate along: a. Understanding Change, b. Planning Change, c. Implementing Change, and d. Consolidating and Monitoring Change,
2. What is the level of change management skills of Elementary School Heads in the province of Masbate along: a. Understanding Change, b. Planning Change, c. Implementing Change, and d. Consolidating and Monitoring Change.
3. Is there a significant difference on the levels of change management skills of Elementary and Secondary School Heads in the province of Masbate?

## Research Design

The research design that was employed by the researcher is the descriptive survey method. The descriptive method was used because descriptive studies supply not only practical but also the factual foundations upon which higher levels of critical thinking and understanding can be established.

## Research Respondents

The respondents of the study were composed of the school heads from both the secondary and elementary levels of education in the province of Masbate that includes the Principals, Supervisors, TIC's and OIC's. Table 1 shows the respondents of the study.



Table 1. *Respondents of the Study*

| Schools*                       | Male | Female | Total |
|--------------------------------|------|--------|-------|
| First Congressional District:  |      |        | 54    |
| Secondary School Heads         | 17   | 10     | 27    |
| Elementary School Heads        | 7    | 20     | 27    |
| Second Congressional District: |      |        | 68    |
| Secondary School Heads         | 14   | 20     | 34    |
| Elementary School Heads        | 16   | 18     | 34    |
| Third Congressional District:  |      |        | 58    |
| Secondary School Heads         | 19   | 10     | 29    |
| Elementary School Heads        | 11   | 18     | 29    |
| GRAND TOTAL                    | 84   | 96     | 180   |

\* Data from Updated Masterlist of School Heads (Masbate Division's Office, 2010)

### Research Instrument

The main questionnaire-checklist published by Heller together with his scoring model was adopted by the researcher, however, there are some items which were partially modified to suit the questions to the educational system supervisors or heads who were the direct respondents of the study. In the same manner, it was still submitted through a process of validation and testing of its reliability.

### Statistical Tools Used

Chi-Square Test. This tool was used to test the significance of two independent variable or data. This tool was used in testing the significance of change management skills between secondary school heads and elementary school heads.

Formula:

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where:

$X^2$  = Chi-square test  
 O = Observed frequency  
 E = Expected frequency

### Heller's Scoring Model

The study adapted the 4-point scale scoring model by Robert Heller, a leading authority on management in analyzing the individual change management skills of the respondents.

1 – Unskilled                      3 – Moderately Skilled  
 2 – Less Skilled                4 - skilled

The analysis for the change management skills of the school heads is based on their manifestation or application of practices/activities as introduced by Robert Heller<sup>4</sup> and the interpretation was based on Heller's Scoring model where a 4-point scale is established and introduced by the researcher, as follows:

a. For Understanding the Change (16 practices/activities)

| Total Score | Interpretation                               |
|-------------|----------------------------------------------|
| Below 1039  | - Does not Like Change                       |
| 1040 – 2079 | - Resisting Change or Unsure of its Benefits |
| 2080 – 3120 | - Understand the Need for Change             |
| 3121 - 4160 | - Skilled Agent of Change                    |

b. For Planning Change (45 practices/activities)

| Total Score  | Interpretation                               |
|--------------|----------------------------------------------|
| Below 2924   | - Does not Like Change                       |
| 2925 – 5849  | - Resisting Change or Unsure of its Benefits |
| 5850 - 8774  | - Understand the Need for Change             |
| 8775 – 11700 | - Skilled Agent of Change                    |



- c. For Implementing Change (22 practices/activities)  
 Total Score      Interpretation  
 Below 1429 - Does not Like Change  
 1430 – 2859 - Resisting Change or Unsure of its Benefits  
 2860 – 4289 - Understand the Need for Change  
 4290 – 5720 - Skilled Agent of Change
- d. For Consolidating and Monitoring Change (17 practices/activities)  
 Total Score      Interpretation  
 Below 1104 - Does not Like Change  
 1105 – 2209 - Resisting Change or Unsure of its Benefits  
 2210 – 3314 - Understand the Need for Change  
 3315 – 4420 - Skilled Agent of Change
- e. For the Summary of Scores on Change Management Skills  
 Total Score      Interpretation  
 Below 5764 - Does not Like Change  
 5765 – 11534 - Resisting Change or Unsure of its Benefits  
 11535– 17304 - Understand the Need for Change  
 17305– 23074 - Skilled Agent of Change

## Results And Discussions

### *Level of Change Management Skills of the Secondary School Heads*

The table revealed that 75% of the change management skill areas garnered an interpretation of “Skilled of Agents of Change” for the secondary school heads. These are change management skills along Understanding Change with 3283, Implementing Change with 4328 and Monitoring and Consolidating Change with, 3385 points. Only one area garnered the interpretation of “Understand the Need for Change” which is the area for Planning Change with a score of 8685. The grand total score is 19681 which is interpreted that the secondary school heads in the province of Masbate are “Skilled Agents for Change.”

**Table 2. Levels of Change Management Skills of Secondary School Heads**

| Change Management Skills          | Score | Interpretation                 |
|-----------------------------------|-------|--------------------------------|
| Understanding Change              | 3283  | Skilled Agents for Change      |
| Planning Change                   | 8685  | Understand the Need for Change |
| Implementing Change               | 4328  | Skilled Agents for Change      |
| Monitoring & Consolidating Change | 3385  | Skilled Agents for Change      |
| Total Score                       | 19681 | Skilled Agents of Change       |

It implies that the secondary school heads in the province of Masbate are generally receptive and has positive approach to change making them skilled agents of change which is a very essential asset to the management and administration of the DepEd in putting in place the needed implementation of school reforms.

### *Level of Change Management Skills of the Elementary School Heads*

The table revealed that 75% of the change management skill areas garnered an interpretation of “Understand the Need for Change” for the elementary school heads. These are change management skills along Understanding Change with 3010, Planning Change with 8616 and Monitoring and Consolidating Change with, 3260 points, respectively. Only one area garnered the interpretation of “Skilled Agent of Change” which is the area along Implementing Change with a score of 4347. The grand total score is 17233 which is interpreted that the elementary school heads in the province of Masbate “Understand the Needs for Change.”

It implies that in Masbate division, the elementary school heads understands the need for change which is a good indication that implementation of any programmed reform or change in the system is possible and is ascertained.

**Table 3. Levels of Change Management Skills of Elementary School Heads**



| Change Management Skills          | Score | Interpretation                 |
|-----------------------------------|-------|--------------------------------|
| Understanding Change              | 3010  | Understand the Need for Change |
| Planning Change                   | 8616  | Understand the Need for Change |
| Implementing Change               | 4347  | Skilled Agents for Change      |
| Monitoring & Consolidating Change | 3260  | Understand the Need for Change |
| Total Score                       | 17233 | Understand the Need for Change |

#### *Significance of the Levels of Change Management Skills of Secondary and Elementary School Heads*

Table 4 shows the significant differences on the levels of change management skills of secondary and elementary school heads in the province of Masbate. It includes the four areas of concentration, the observed and expected values, the tabled value and the analysis.

It can be gleaned in the table that the chi-square obtained value is 27.949. Using 3.00 as the degree of freedom, the table value at .05 is 7.815 and at .01 is 11.345, accordingly. The interpretation obtained is "Highly Significant". It is therefore concluded that the null hypothesis is rejected and the alternate hypothesis is accepted, stated that there is a significant difference on the levels of change management skills between the secondary and elementary school heads in the province of Masbate.

It implies the secondary school heads are generally described as "Skilled agents of change" while the elementary school heads are described to "Understand the need for change." It further implies that there is a need to further enhance the capabilities of the elementary school heads in managing change in the school system and that there might be influential factors affecting the development of skills in managing change in the elementary level which needs to be identified and analyzed.

Table 4. *Significance of the Levels of Change Management Skills*

| AREAS                               | ELEMENTARY<br>(O) | SECONDARY<br>(E) | (O - E) | (O - E) <sup>2</sup> | (O - E) <sup>2</sup> / E | X <sup>2</sup> T-Value                   | Analysis           |
|-------------------------------------|-------------------|------------------|---------|----------------------|--------------------------|------------------------------------------|--------------------|
| Understanding Change                | 3010              | 3283             | -273    | 74529                | 22.701                   | Df = 3.00<br>.01 = 11.345<br>.05 = 7.815 | Highly Significant |
| Planning Change                     | 8616              | 8685             | -69     | 4761                 | 0.548                    |                                          |                    |
| Implementing Change                 | 4347              | 4328             | 19      | 361                  | 0.083                    |                                          |                    |
| Consolidating<br>&Monitoring Change | 3260              | 3385             | -125    | 15625                | 4.615                    |                                          |                    |
| TOTAL                               |                   |                  |         | X <sup>2</sup>       | 27.949                   |                                          |                    |

## Conclusions And Recommendations

### *Conclusions*

Based on the findings of the study, the following conclusions were drawn:

1. The secondary school heads in the province of Masbate are generally receptive and have positive approach to change making them skilled agents of change which is a very essential asset to the management and administration of the DepEd in putting in place the needed implementation of school reforms.
2. In Masbate division, the elementary school heads understands the need for change which is a good indication that implementation of any programmed reform or change in the system is possible and is ascertained.
3. There is quite difference in the level of change management skills between the school heads of secondary and elementary schools in the province of Masbate. The former group generally described as "Skilled Agents of Change" while the latter are described to "Understand the Need for Change." It is therefore concluded that the null hypothesis is rejected and the alternate hypothesis is accepted, stated that there is a significant difference on the levels of change management skills between the secondary and elementary school heads in the province of Masbate.

### *Recommendations*



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Based on the conclusions, the following recommendations were formulated:

1. Utilize the expertise of the secondary school heads in implementing reforms and change in the system and design effective strategies on how these skills become functional to the fullest extent.
2. Look into the factors affecting the development of higher skills in managing change among the elementary school heads.
3. There should be a training-seminar for public school heads specifically on the topic for change management skills to enhance their knowledge and expertise.
4. Conduct researches related to the present study to better establish reliability and validity of the findings of the present study.

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## Task Performance of Deck and Engine Cadets of the Maritime Education Upgrading Program

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### Abstract

Strong dynamics in international maritime education and training has provided stakeholders the challenge to level-up in order to remain globally competitive. Responsive to this challenge, the effort towards sustainable-continual improvement with regards to product realization among students of the Maritime Education Upgrading Program conceived under the international cooperation of the Palompon Institute of Technology (PIT) and the Royal Association of Netherlands Shipowners (KVNR), shipboard performances of deck and engine cadets onboard Dutch ships, aligned with the competences required in Table A-II/1, 2, & 3 of the Standards, Training, Certification and Watchkeeping '78 (STCW '78), as amended, revealed results in the Task Performance in Navigation manifested that the deck cadets performed the required tasks to high level of performances consistent with the theoretical knowledge gained in school and to the acquired skills, competences, and actual work performance requirements onboard ships. On the other hand, results of the Task Performance in Marine Engineering attributed to the engine cadets indicated that these cadets have likewise performed the task aligned with the competences required in the STCW '78 to an average level.

The study was a descriptive-survey utilizing a standardized instrument of the College of Maritime Education's Quality Management System Manual. The instruments were sent to shipboard trainer officers' on board Dutch ships. Filled up survey instrument were then authenticated by ship Masters and stamped with the ships' seal before these were sent back to the school either through email via the cadets' respective manning agencies or by the cadets themselves upon their disembarkation.

Keywords: task performance, competence, Maritime Education Upgrading Program

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## **Introduction**

For the longest time since year 2000 when the Palompon Institute of Technology (PIT) and the Royal Association of Netherlands Shipowners (KVNR) entered into a bilateral cooperation in the area of maritime education, the PIT-KVNR Maritime Education Upgrading Program (MEUP) has dramatically shifted institutional performance towards sustainability of national and international gains in the field of global maritime education. Over these years, PIT has evolved into becoming a school to reckon with in the field of maritime education. In just a short span of time, it has become a tradition for PIT to have board topnotchers both in deck and engine Professional Regulations Commission (PRC) board examinations. Consistently, maritime board examinees continue to add into PIT's laurel with significantly high passing percentage surpassing national percentage.

In an effort to sustain these positive gains, continuous program monitoring has been put in place like monitoring the performances of deck and engine cadets who undergo 1- year mandatory shipboard apprenticeship training. From this end, necessary corrective measures called for from any undesirable results are then initiated to create positive change. It is always incumbent upon the PIT-KVNR management to remain in control over in all situations including cadets' performances on board ships while undergoing the 1-year mandatory apprenticeship training. Strong internal and external dynamics in the maritime education, training, shipping and industries affecting program outcomes require management's proactive actions.

Considering that expectations towards the performance level of these maritime cadets are continuously getting higher, it has now become an object of concern on how to come-up or sustain with such increasing expectations. There are several factors that may influence performance level of an individual considering that this is not a close-tight situation where other factors need not be considered with. In view of this, customer satisfaction or product realization calls for continual improvement to remain globally competitive.

## **Statement of the Problem**

This study was conducted in order to determine the indices of tasks performance of the deck and engine cadets of the 9<sup>th</sup> Batch of the PIT-KVNR MEUP during their apprenticeship training on board Dutch merchant ships from 2010 to 2011.

Specifically, this study sought to answer the following questions: 1. What is the index of task performance of the deck cadets at the operation level in the areas of: navigation; cargo handling and stowage; cargo handling and stowage – tankers; and controlling the operation of the ship and care for persons on board; 2. What is the index of task performance of the engine cadets at the operational level in the areas of: marine engineering; electrical, electronic, and control engineering; maintaining and repair; and controlling the operation of the ship and care for persons on board?

## **Methodology**

This study utilized the descriptive-survey method (Padua, 2000). A standardized survey instrument was utilized to gather data from the respondents on board Dutch ships. The locale of the study was at PIT and the data gathering was conducted onboard Dutch ships of international trade.

The subjects of this study were the deck and engine cadets who completed their 3-year curricular academic requirements in the COMEd of PIT from school years 2007-2008 up to 2009-2010 and were qualified to take their 1 year shipboard apprenticeship onboard Dutch ships from 2010 to 2011.

Moreover, the respondents involved in this study were both deck and engine management level officers who were designated as shipboard trainer officers onboard ships owned by Dutch shipping companies who are members of KVNR in the The Netherlands.

This study utilized a standardized survey instrument contained in the Quality Management System Manual of COMEd for continual improvement in the delivery of instruction, product realization and customer satisfaction, among others. The College's Quality Management System is certified according to the Det Norske Veritas (DNV) Rules for Maritime Academies for over a decade already.



The survey instruments were sent to all designated shipboard trainer officers' during the cadets' shipboard training covering the period 2010 - 2011. These survey instruments were previously distributed to all deck and engine cadets during their pre-departure briefing in school before they reported to their respective manning agencies in Manila for deployment with explicit instruction that upon embarkation these instruments are to be handed over to their shipboard trainer officers. The respondents' trainer officers were asked to fill up the instrument objectively and write their comments, if necessary. To ensure authenticity of the responses, the instrument has to be signed by the designated shipboard trainer officer and the Master. The instrument also has to be stamped with the ship's seal. Filled up survey instruments were then sent back to the College either through email via the cadets' respective manning agencies or by the cadets themselves upon their disembarkation.

For purposes of this study, sample sizes of 43 for deck cadets and 39 for engine cadets were achieved. These sample sizes constituted about 58.90% and 45.35% of the population for both deck and engine, respectively, where the filled-up survey instruments have been forwarded or returned back to COMEd. Considering that the subjects' deck and engine cadets were not deployed by their manning agencies at the same, it follows that their dates of disembarkation from their respective ship assignments were not also happening at the same time. This factor was considered by the researcher as the sample sizes for deck and engine cadets were already acceptable as both were above 10% of the sample size.

The statistical measures used were the frequency count and weighted mean. Data were collected, tabulated, analyzed and interpreted by means of the quantitative and qualitative descriptions.

## Results and Discussion

Table 1 shows results of the task performance in navigation.

Table 1. *Task Performance in Navigation*

| No. | Task/Duties                                                              | Weighted Mean | Interpretation |
|-----|--------------------------------------------------------------------------|---------------|----------------|
| 1.1 | Plan and conduct a Passage and determine position                        | 4.00          | Above Average  |
| 1.2 | Maintain a safe navigation watch                                         | 4.00          | Above Average  |
| 1.3 | Use of RADAR and ARPA to maintain safety of navigation                   | 3.93          | Above Average  |
| 1.4 | Respond emergencies                                                      | 3.56          | Above Average  |
| 1.5 | Respond to a distress signal at sea                                      | 3.47          | Above Average  |
| 1.6 | Use IMO standard Marine communication phrase and write and speak English | 4.10          | Above Average  |
| 1.7 | Transmit and receive information by visual signaling                     | 3.43          | Above Average  |
| 1.8 | Maneuver a ship                                                          | 3.53          | Above Average  |
|     | Overall Weighted Mean                                                    | 3.75          | Above Average  |

Table 1 revealed that the cadets had performed the tasks performance "above average" in practically all competences in Navigation. Moreover, it was also revealed that the cadets obtained the lowest weighted mean at 3.43 in the competence *transmit and receive information by visual signaling* while the highest weighted mean at 4.10 was in the competence *'use IMO standard Marine communication phrase and write and speak English.'* All the results manifested ability to perform the different tasks required for the competences to high level of performance.

Table 2 shows the task performance in cargo handling and stowage.

Table 2. *Task Performance in Cargo Handling and Stowage*

| No. | Task/Duties                                                      | Weighted Mean | Interpretation |
|-----|------------------------------------------------------------------|---------------|----------------|
| 2.1 | Monitor the loading, stowage, securing and unloading of cargoes. | 3.87          | Above Average  |

As shown in Table 2, the cadets obtained the weighted mean of 3.87, interpreted "above average" indicating that the cadets demonstrated ability to perform the tasks required for the competences to high level of performance.

Table 3 shows the task performance in cargo handling and stowage – tanker for deck cadets.



**Table 3. Task Performance in Cargo Handling and Stowage – Tanker for Deck Cadets**

| No.                   | Task/Duties                                                  | Weighted Mean | Interpretation |
|-----------------------|--------------------------------------------------------------|---------------|----------------|
| 3.1                   | Monitor the loading of cargoes.                              | 4.05          | Above Average  |
| 3.2                   | Monitor the discharging of cargoes.                          | 3.65          | Above Average  |
| 3.3                   | Maintain and overhaul cargo system and associated equipment. | 3.53          | Above Average  |
| Overall Weighted Mean |                                                              | 3.74          | Above Average  |

Table 3 revealed results attributed to the area of cargo handling and stowage – tanker for deck cadets with overall weighted mean of 3.74, interpreted “above average.” All the rest of the specific competences was also rated “above average” indicating that the cadets were able to demonstrate ability to perform the different tasks required in the competences to high level of performances.

Table 4 shows the task performance in controlling the operation of the ship and care for persons on board.

**Table 4. Task Performance in Controlling the Operation of the Ship and Care for Persons on Board**

| No.                   | Task/Duties                                               | Weighted Mean | Interpretation |
|-----------------------|-----------------------------------------------------------|---------------|----------------|
| 4.1                   | Ensure compliance with pollution prevention requirements. | 3.93          | Above Average  |
| 4.2                   | Maintain seaworthiness of the ship.                       | 3.83          | Above Average  |
| 4.3                   | Prevent, control and fight fires on board.                | 3.90          | Above Average  |
| 4.4                   | Operate life-saving appliances.                           | 4.00          | Above Average  |
| 4.5                   | Apply medical first aid on board.                         | 3.50          | Above Average  |
| 4.6                   | Monitor compliance with legislative requirements.         | 3.77          | Above Average  |
| Overall Weighted Mean |                                                           | 3.82          | Above Average  |

Table 4 revealed overall weighted mean in Controlling the Operation of the Ship and Care for Persons on Board with 3.82, interpreted ‘above average.’ Moreover, specific tasks performed by the cadets like the competence “operate life-saving appliances” and apply medical first aid on board’, with weighted means of 4.00 and 3.50, respectively, both interpreted “above average” indicating that the cadets have demonstrated the ability to perform the tasks required in the competence with high level of performances.

Table 5 shows the overall task performance at the operational level for deck cadets.

**Table 5. Overall Task Performance at the Operational Level for Deck Cadets**

| No.                         | Task/Duties                                                                                   | Overall Weighted Mean | Interpretation |
|-----------------------------|-----------------------------------------------------------------------------------------------|-----------------------|----------------|
| 1.0                         | Navigation at the Operation Level.                                                            | 3.75                  | Above Average  |
| 2.0                         | Cargo Handling and Stowage at the Operational Level.                                          | 3.87                  | Above Average  |
| 3.0                         | Cargo Handling and Stowage – Tankers                                                          | 3.74                  | Above Average  |
| 4.0                         | Controlling the Operation of the Ship and Care for Persons on Board at the Operational Level. | 3.82                  | Above Average  |
| Grand Overall Weighted Mean |                                                                                               | 3.80                  | Above Average  |

Table 5 shows the grand overall tasks performance at the operational level for deck cadets of the 9<sup>th</sup> batch of the graduates under the MEUP of the PIT - KVN. The deck cadets were rated with grand overall weighted mean of 3.80, interpreted as ‘above average.’ Subsequently, the deck cadets were rated in all areas with task performances similarly interpreted “above average” indicating that the cadets have demonstrated the ability to perform all the tasks required in the different competences in Navigation at the Operational Level with high level of performance.

Table 6 shows results attributed in the area of task performance in marine engineering.

Table 6 revealed results attributed to the task performances in the Operational Level for Marine Engineering which obtained an overall weighted mean of 3.63, interpreted as ‘above average.’



Moreover, the cadets were rated the tasks performances in the “*use appropriate tools for fabrication and repair operation typically performed on ship*” and “*operate pumping system and associated control systems*” which were both rated the highest weighted mean with 3.73, and the lowest weighted mean at 3.47 in the competence “*use hand tools, electrical and electronic measuring and test equipment for fault finding maintenance and repair operations.*” All the ratings shown were interpreted “above average” indicating that the engine cadets were able to demonstrate ability to perform the specific competences with high level of performance.

Table 6. *Task Performance in Marine Engineering*

| No.                   | Task/Duties                                                                                                                   | Weighted Mean | Interpretation |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| 1.1                   | Use appropriate tools for fabrication and repair operation typically performed on ship.                                       | 3.73          | Above Average  |
| 1.2                   | Use hands tools and measuring equipment for dismantling, maintenance, repair and reassembly of shipboard plant and equipment. | 3.67          | Above Average  |
| 1.3                   | Use hand tools, electrical and electronic measuring and test equipment for fault finding maintenance and repair operations.   | 3.47          | Above Average  |
| 1.4                   | Maintain a safe engineering watch.                                                                                            | 3.60          | Above Average  |
| 1.5                   | Use English in written and oral form.                                                                                         | 3.67          | Above Average  |
| 1.6                   | Operate main and auxiliary machinery, and associate control systems.                                                          | 3.57          | Above Average  |
| 1.7                   | Operate pumping system and associated control systems.                                                                        | 3.73          | Above Average  |
| Overall Weighted Mean |                                                                                                                               | 3.63          | Above Average  |

Table 7 shows the results attributed to the area in electrical, electronic, and control engineering at the operational level for engine cadets.

Table 7. *Task Performance in Electrical, Electronic, and Control Engineering at the Operational Level for Engine Cadets*

| No. | Task/Duties                                            | Weighted Mean | Interpretation |
|-----|--------------------------------------------------------|---------------|----------------|
| 2.1 | Operation alternators, generators and control systems. | 3.30          | Average        |

Results revealed in Table 7 of the task performance for the competence “operation alternators, generators and control systems” was rated with weighted mean 3.30, interpreted “average” indicating that the cadets had performed the task/duty required for the competence in the average level of performance.

Table 8 shows the results attributed to the domain of task performance in maintaining and repair at the operational level for engine cadets.

Table 8. *Task Performance in Maintaining and Repair at the Operational Level for Engine Cadets*

| No. | Task/Duties                                              | Weighted Mean | Interpretation |
|-----|----------------------------------------------------------|---------------|----------------|
| 3.1 | Maintain engineering systems, including control systems. | 3.40          | Average        |

As revealed in Table 8, the task performance for the competence “*maintain engineering systems, including control systems*” obtained a weighted mean of 3.40, interpreted as “average” indicating that the cadets have demonstrated average level of performance. This result manifested that engine cadets had performed the required task/duty to average level of performance in aligned with the theoretical and practical knowledge gained in school and to the acquired skills and actual work performance requirements on board. Known to engine cadets within the environment of a marine plant are many parameters which need to be controlled or monitored including: temperatures, pressure, level, viscosity, flow control, speed, torque control, voltage, current, machinery status (on/ off), and equipment status (open/ closed).

Table 9 shows the results attributed to the domain of task performance in controlling the operation of the ship and care for persons on board at the operational level for engine cadets.



Table 9. *Task Performance in Controlling the Operation of the Ship and Care for Persons on Board at the Operational Level for Engine Cadets*

| No.                   | Task/Duties                                               | Weighted Mean | Interpretation |
|-----------------------|-----------------------------------------------------------|---------------|----------------|
| 4.1                   | Ensure compliance with pollution prevention requirements. | 3.67          | Above Average  |
| 4.2                   | Maintain seaworthiness of the ship.                       | 3.63          | Above Average  |
| 4.3                   | Prevent, control and fight fires on board.                | 3.40          | Average        |
| 4.4                   | Operate life-saving appliances.                           | 3.57          | Above Average  |
| 4.5                   | Apply medical first aid on board.                         | 3.03          | Average        |
| 4.6                   | Monitor compliance with legislative requirements.         | 3.40          | Average        |
| Overall Weighted Mean |                                                           | 3.45          | Above Average  |

Results revealed in Table 9 indicated that the cadets obtained overall weighted mean with 3.45 interpreted “above average” to mean that the cadets were able to demonstrate the ability to perform the tasks required for the competence to high level of performance.

Moreover, the table also shows the competence “*apply medical first aid on board*” with the lowest weighted mean at 3.03, interpreted “average” indicating the cadets were able to demonstrate ability to perform the task required for the competence only at average level of performance. On the other hand, the competence “ensure compliance with pollution prevention requirements” was rated the highest weighted mean at 3.67, interpreted “above average” indicating that the cadets were able to demonstrate the ability to perform the task required in the competence with high level of performance.

Table 10 shows the results attributed to the overall task performance at the operational level for engine cadets.

Table 10. *Overall Task Performance at the Operational Level for Engine Cadets*

| No.                         | Task/Duties                                                                                   | Weighted Mean | Interpretation |
|-----------------------------|-----------------------------------------------------------------------------------------------|---------------|----------------|
| 1.0                         | Marine Engineering at the Operational Level.                                                  | 3.63          | Above Average  |
| 2.0                         | Electrical, Electronic, and Control Engineering at the Operational Level.                     | 3.30          | Average        |
| 3.0                         | Maintaining and Repair at the Operations Level.                                               | 3.40          | Average        |
| 4.0                         | Controlling the Operation of the Ship and Care for Persons on Board at the Operational Level. | 3.45          | Above Average  |
| Grand Overall Weighted Mean |                                                                                               | 3.44          | Average        |

Table 10 shows the grand overall of task performance of the subjects’ engine cadets at the operational level for engine cadets. As shown in the table, the cadets obtained the grand overall weighted mean at 3.44, interpreted “average” indicating that the engine cadets were able to demonstrate ability to perform the tasks required in the operational level for engine cadets to average level of performance.

Moreover, the tasks/duties electrical, electronic, and control engineering at the operational level which obtained the lowest overall weighted mean at 3.30, interpreted “average” indicated that the engine cadets were able to demonstrate performance of the tasks required for the competence to average level. On the other hand, the tasks/duties Marine Engineering at the Operational Level was rated overall weighted mean at 3.63, interpreted “above average” indicating that the engine cadets were able to demonstrate the ability to perform the tasks required in the competence to high level of performance.

### Findings

1. Results have shown that the tasks performances of the deck cadets in practically all the competences in the Operational Level in Navigation, as required in the Table A-II/1, 2 & 3 of the STCW 78/95, as amended, were demonstrated to have been performed in high level of performances.
2. On the other hand, results for the tasks performances attributed to the Operational Level in Marine Engineering have shown that the cadets’ performances in the different competences required were slightly varied in performance level giving a grand overall result demonstrated to an average level of performance.

### Conclusion

The task performances required in all the competences enumerated in the STCW 78/95, as amended, of both deck and engine cadets of the 9<sup>th</sup> Batch were found to have been performed at high level and average level, respectively, of performances.





In view of the results attributed to the deck cadets, the researcher is of the impression that theoretical and practical knowledge thought in the maritime professional subjects were complimentary and supplementary with the actual shipboard requirements. Skills acquired by the deck cadets while performing their shipboard training complemented their theoretical foundation which effectively resulted to high level of performance appreciated by shipboard training officers on board. Good theoretical and practical foundations, when supplemented and complimented with good onboard actual work exposure, will result to an appreciable high level of performance.

On the other hand, results attributed to the tasks performances of the engine cadets were found to be slightly lower in the average level of performance. The results implied that the engine cadets encountered certain level of difficulties demonstrating competences required in the STCW '78, as amended. The researcher is of the impression that certain kind of enhancement or coaching need to be initiated in order to level-up knowledge and skills gained by the cadets.

### **Recommendations**

1. Initiate extensive re-tooling of the faculty members handling professional subjects to avert downward rate of tasks performances of the different competences required in the STCW '78, as amended, by sending them to training, seminars and job rotation.
2. Recruit highly qualified and competent deck and engine licensed officers to teach in the professional subjects in marine transportation and marine engineering.
3. Invest for additional simulator (ECDIS, Radar/ARPA, AIS, steam plant, control system) and machineries to achieve equipment-student ratio of 1:2.
4. Increase time exposure of the students to the operation of the simulator like ECDIS, Radar/ARPA, AIS, steam plant, and control system to develop their competences to the fullest.
5. Acquire additional hand tools, electrical and electronic measuring and test equipment for fault finding maintenance and repair operations to give the students the opportunity to practice this equipment and prepare them to real engine work situations.
6. Integrate medical first aid and prevent, control and fight fires on board in the curriculum as a subject with no credit unit to train the students the appropriate medical actions and to emergencies arising from fires on board.
7. Develop students 'soft skills' to improve working attitude of the students while still in school by empowering and training them as officers rather than as students.

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## **Labor Laws Compliance System: Its Implementation In Cebu City**

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### **Abstract**

Labor Laws are made to govern and protect the rights of the workers, thus they are amended whenever warranted to ensure the welfare of the working class, while at the same time upholding the economic productivity and prosperity of the industrial sector. This imperative has attained ordinal importance in the light of the economic integration of the Philippines with ASEAN. Under Article 128 of the Labor Code of the Philippines, the Secretary of Labor and Employment is mandated to conduct routine inspections to assess the compliance of the business establishments with labor standards. In an effort to ease and simplify the inspection process, the DOLE, on July 19, 2013, promulgated Department Order 131-13 series of 2013, known as “Rules on Labor Laws Compliance System” which contains the new rules and regulations in the implementation of local labor legislation. This paper examined the meaning, coverage, benefits, implications and implementation of the Labor Laws Compliance System (LLCS) on business establishments in Cebu (inclusive of the province’s component cities and municipalities). Cebu is an island province in the Central Region of the Philippines, with Cebu City as its capital. The growth of Cebu City has influenced incremental economic ripples to its neighboring cities and municipalities leading to a highly urbanized industrial and commercial sprawl called Metro Cebu. The study employed as research methods documentary inspection and analyses, supplemented by in-depth interviews. The informants included government officials and civil servants, executives and managers, labor leaders and private sector employees.

**Keywords:** Labor Laws, Department of Labor and Employment, labor laws compliance, industrial safety, economic integration, Cebu, Philippines.

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## Introduction

A noted philosopher, Christian Wolff, once said, "Transparency and compliance with the law are factors for further development." Since the world today is increasingly competitive, changing, and linked, government agencies need to assess employers' compliance to labor laws and standards, and ensure the existence of mechanisms that will ensure optimal compliance during and in-between monitoring and visitations. Assessing the extent of the establishments' compliance tend to encourage employees in that that establishment more productive and innovative. Regulatory compliance is an organization's adherence to laws, regulations, guidelines and specifications relevant to its business. Violations of regulatory compliance regulations often result in legal punishment xxx (<http://searchcompliance.techtarget.com/definition/regulatory-compliance>). All organizations should aspire to achieve their goals to ensure that they are aware of and take steps to comply with relevant laws and regulations. Complying with the laws and regulations generally leads to the establishment making positive impact to its employees, to the community, and to the country. If an organization meets the expectations of its stakeholders, an enhancement of the system is possible, otherwise, corrective measures are recommended.

One government agency that assesses or evaluates whether or not establishments comply with labor laws and policies set by the government is the Department of Labor and Employment (DOLE). In line with this, Department of Labor and Employment Order 131-13 Rules on Labor Laws and Compliance Rule 1 Section 2 states, "The visitorial and enforcement power of the Secretary of Labor and Employment remains as the primary framework in ensuring compliance with labor laws. The promotion of voluntary compliance through the use of developmental approach is supplement to: (a) inculcate a culture of compliance with labor laws; (b) ensure fair, expeditious, and the non-litigious settlement of disputes; (c) encourage the use of settlement in all cases; and, (d) strengthen tripartism among employees, employers, and government ( Department Order 131-13 Series of 2013).

Under Article 128 of the Labor Code of the Philippines, on Visitorial and Enforcement Power, the Secretary of Labor and Employment or his duly authorized representatives, including labor regulation officers, may exercise visitorial powers, and may conduct routine inspections of employer's books, records, employees and premises to assess the compliance of business establishments and their contractors with labor standards. Labor Standards refer to the minimum requirements prescribed by existing laws, rules and regulations, and other issuances in relation to labor and occupational safety and health standards (<http://www.nscb.gov.ph/ru12/DEFINE/DEF-LABO.HTM> ).

During labor standards inspections, the Secretary of Labor and Employment or his duly authorized representatives, including labor regulation officers is given considerable discretion, is authorized to enter business establishments without prior warning to request immediate access to the employers' records and to question any employee on the premises. When considered appropriate, the Secretary of Labor and Employment or his duly authorized representatives, including labor regulation officers, may also issue compliance orders to erring employers, and may even order the stoppage of work or the suspension of operations.

In an effort to ease and simplify the inspection process, the DOLE, on July 19, 2013, disseminated Department Order 131-13 series of 2013, known as "Rules on Labor Laws Compliance System".

The Labor Laws Compliance System (LLCS) refers to the integrated framework of voluntary compliance and enforcement of labor laws and social legislations issued pursuant to the rule-making and visitorial and enforcement power of the Secretary of Labor and Employment. It ensures compliance through Joint Assessment, Compliance Visit, and Occupational Safety and Health Standards Investigation.

Through the Labor Laws Compliance System (LLCS), business establishments will not have difficulty complying with our labor laws, thus resulting to happy and productive employees and business growth.

Julie Ann M. Britanico of the Angara Abello Concepcion Regala and Cruz Law Offices (ACCRALAW) elucidates that in conducting labor standards inspections, the Secretary of Labor is granted considerable discretion, and is authorized to enter business establishments without prior warning. During said inspections, the Secretary of Labor is likewise authorized to request immediate access to the employer's records, and to question any employee on the premises. When deemed appropriate, the Secretary of Labor may also issue compliance orders



to erring employers, and may even order the stoppage of work or the suspension of operations (<http://www.accralaw.com/publications/inspection>). Article 128 (Visitorial and Enforcement Power) of the Labor Code of the Philippines reiterates the responsibility of DOLE on labor law compliance. The said Article states, “a) The Secretary of Labor and his duly authorized representatives, including labor regulation officers, shall have access to employer’s records and premises of any time of the day or night whenever work is being undertaken therein, and the right to copy therefrom, to question any employee and investigate any fact, condition or matter which may be necessary to determine violations or which may aid in the enforcement of this Code and of any labor law, wage order or rules and regulations issues pursuant thereto.” ([http://www.dole.gov.ph/labor\\_codes](http://www.dole.gov.ph/labor_codes)) In the same article of Britanico published in the ACCRALAW website (<http://www.accralaw.com/publications/inspection>), she points out:

“These Rules establish the procedure for the various modes of labor inspections, and provide for avenues to reduce the number of labor cases by providing parties with an expedient manner of resolving labor issues in a non-litigious manner. While initially, it may appear that these rules simply provide another layer of bureaucratic red tape to the already complicated labor laws, however, a close perusal of the same shows that it does provide several advantages for employers, such as improving labor relations and reducing the likelihood of litigation arising from labor related issues. The Rules also provide for limitations on the powers of DOLE officials in conducting said visitorial power.”

Supporting DOLE’s Order 131 Series of 2013 is the Article 5 (Rules and Regulations) of the Labor Code of the Philippines which states that the Department of Labor and other government agencies charged with the administration and enforcement of the Code or any of its parts shall promulgate the necessary implementing rules and regulations. Such rules and regulations shall become effective (15 days) after announcement of their adoption in newspaper of general circulation ([http://www.dole.gov.ph/labor\\_codes](http://www.dole.gov.ph/labor_codes); Civil Code of the Philippines).

Priorities are given to certain institutions to be assessed. This is articulated in Section 2 Rule IV (Joint Assessment) of the Department Order 131-13. ([http://www.dole.gov.ph/labor\\_codes](http://www.dole.gov.ph/labor_codes)) which states that in the conduct of assessment, the priority establishments and workplaces are as follows: (1) engaged in hazardous work; (2) employing child employees; (3) engaged in contracting and sub-contracting arrangements; (4) Philippine registered ships and vessels engaged in domestic shipping; and (5) employing 10 or more employees.

In a news article published in SunStar Daily dated December 23, 2014, Justin K. Vestil reported that the Department of Labor and Employment (DOLE) awarded 505 companies in Central Visayas for complying with labor laws and standards (<http://archive.sunstar.com.ph/cebu/local-news>). The assessment determined if the visited establishments complied with the general labor laws, occupational safety and health standards and labor relations, among others. Those who were found failing on some standards would get DOLE’s help in improving its performance.

From the website <http://www.bworldonline.com> dated December 28, 2014, Imee Charlee C. Delavin posted that the Philippines obtained 1 million dollars International Labor Organization (ILO) grant to support labor laws compliance system (LLCS) initiative. The ILO, a United Nations agency, extended the grant with the input of the US government, which is seeking to promote broader adoption of labor standards worldwide.

Recently, however, the big fire that broke out at KENTEX in Valenzuela City last May 13, 2015 has been a test on the compliance of labor laws. The lives of the scathing injury of KENTEX workers are the heavy price for the complete breakdown of government’s labor laws enforcement and for the employers’ patent disregard to the mandatory laws on wages, social protection benefits, and the statutory basic workplace safety guidelines (<http://www.sentro.org/>). Due to the negligence of those concerned, NAGKAISA Labor Coalition urges DOLE to seize the historical opportunity to render justice not just for the KENTEX workers but to finally break the widespread culture and practice of corporate irresponsibility that made the loss of the workers’ lives not just immoral, but evil and criminal.

Each establishment is expected to encourage a culture of conforming with labor laws; to make sure that legal disputes are settled speedily, if possible be avoided; to support legal settlement; and to embrace the participation



of the employees, employers, and the government in all the company's undertakings. Thus, this study is anchored on the establishments' compliance to labor laws and standards.

### Conceptual Framework Of The Study

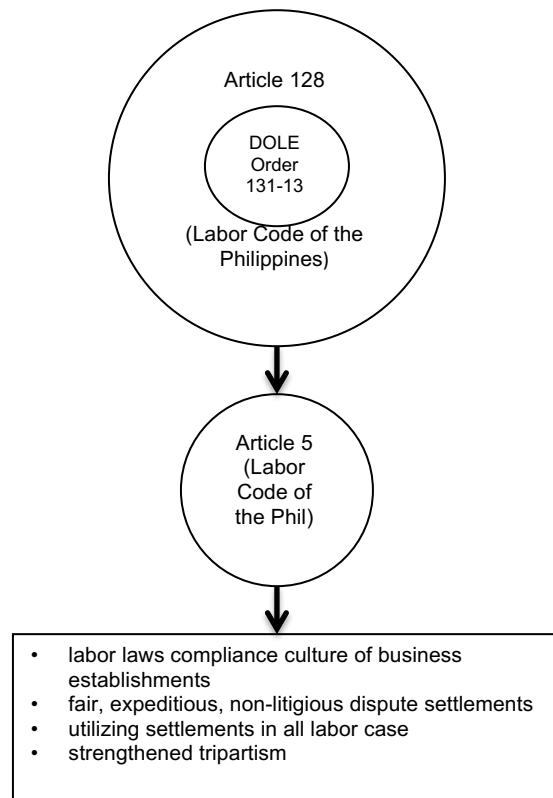


Fig.1. Conceptual Framework of the Study

### Objectives Of The Study

Labor Laws are made to govern and protect the rights of the workers, thus they are amended whenever warranted to ensure the welfare of the working class, while at the same time upholding the economic productivity and prosperity of the industrial sector. This imperative has attained ordinal importance in the light of the economic integration of the Philippines with ASEAN. Under Article 128 of the Labor Code of the Philippines, the Secretary of the Labor and Employment is mandated to conduct routine inspections to assess the compliance of the business establishments with labor standards. In an effort to ease and simplify the inspection process, the DOLE, on July 19, 2013, promulgated Department Order 131-13 series of 2013, known as "Rules on Labor Laws Compliance System" which contains the new rules and regulations in the implementation of local labor legislation. This paper sought to determine the answers to the following questions:

1. What is the implementation profile of the labor law compliance by the chosen business establishments in Cebu City with regard to the following areas:
  - 1.1 general labor standards;
  - 1.2 child labor free; and
  - 1.3 occupational safety and health standard?
2. What are the highlights of accomplishments of these chosen business establishments in Cebu City in relation to the labor law compliance system?
3. What recommendations should be made to improve the chosen business establishments' implementation on the labor laws compliance system?





The study employed documentary inspection and analyses supplemented by in-depth interviews. The informants included government officials and civil servants, executives and managers, labor leaders and private sector.

### Description Of The Study

Anchored on Article 128 of the Labor Code of the Philippines and of Department of Labor and Employment (DOLE) Order 131-13, supported by Article 5 of the Labor Code of the Philippines, the research was aimed to assess the implementation profile to the labor law compliance of the chosen establishments located in the City of Cebu.

Central Visayas, designated as Region VII, is a region of the Philippines located in the central part of the Visayas island group. It consists of four provinces; namely, Bohol, Cebu, Negros Oriental, and Siquijor, and the highly urbanized cities of Cebu City, Lapu-lapu City, and Mandaue City. Although Cebu City, Mandaue City and Lapu-Lapu City are often grouped under the province of Cebu for statistical purposes by the National Statistics Office, as highly urbanized cities they are administratively independent from the province. Cebu City is its regional center.

The region is dominated by the native speakers of Bisaya. Cebuano is the dominant language of the region. In Bohol, Cebuano is referred to as Boholano. In the Camotes Islands, which is part of Cebu, Cebuano language is spoken in the towns of Tudela, Pilar and San Francisco. Except the town of Poro, in which, Porohanon is spoken (a variation or mixture of Cebuano, Hiligaynon (Ilonggo) and Masbateño language).

The land area of the region is 15,875 square kilometers. As of the 2007 census, it has a population of 6,398,628, making it the 5th most populous of the country's 17 regions. The population density was 403.1 people per square kilometer. The census showed an average annual population growth rate of 1.59% from 2000 to 2007, significantly less than the national average of 2.04%. Component Cities are Negros Oriental (Bais City, Bayawan City, Canlaon City, Dumaguete City, Guihulngan City, Tanjay City), Cebu (Bogo City, Carcar City, Danao City, Naga City, Talisay City, Toledo City), Bohol (Tagbilaran City). Major Industries include – shipping, manufacturing, tourism (including hotels, resorts and restaurants), education, agriculture, wholesale/retail, and ICT services.

The conduct of assessment was done through the assignment of business establishments by the Regional Director to the Labor Law Compliance Officer (LLCO) who happened to be the researchers of this study. The Regional Director issued a Letter and Authority to Assess to the chosen business establishments. The said Letter was carried by the LLCOs to the establishments specifying the purpose of the assessment. In the presence of the representatives of the employees, the LLCOs examined the employment records. The issuance of Notice of Results and Certificates of Compliance were issued to the establishments found to be compliant. In the case of non-compliance, the LLCOs provided the establishments with the accomplished assessment checklist indicating the noted deficiency.

The study employed documentary inspection and analyses supplemented by in-depth interviews. The informants included government officials and civil servants, executives and managers, labor leaders and private sector.

### Research Methods

The study employed documentary inspection and analyses supplemented by in-depth interviews. The informants included government officials and civil servants, executives and managers, labor leaders and private sector.

The following steps were performed in conducting the research study:

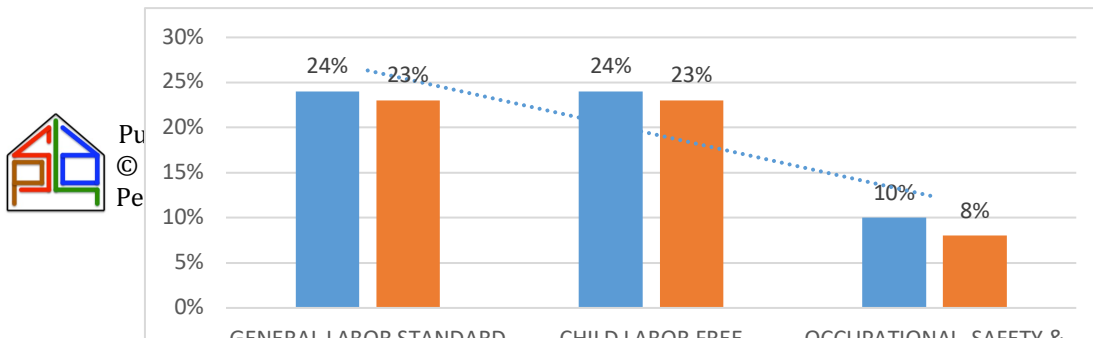
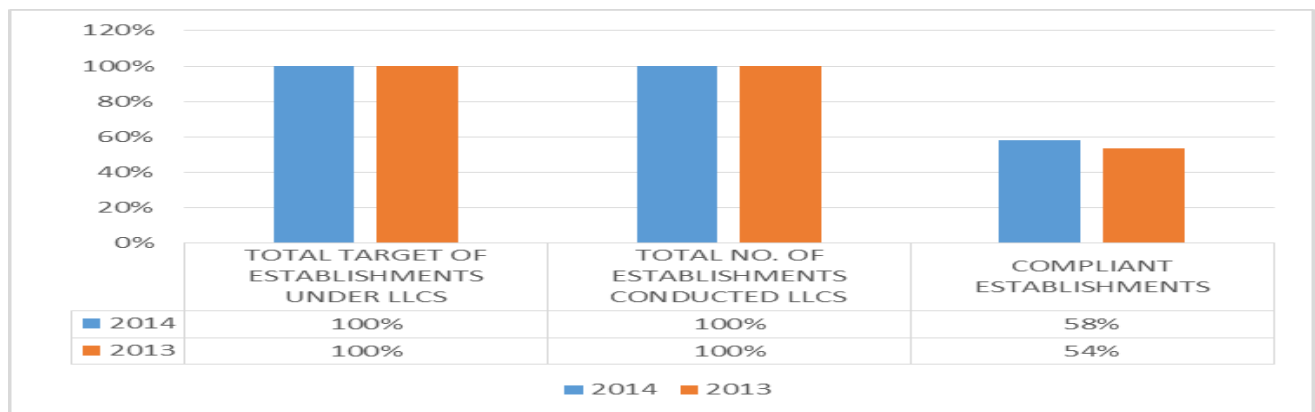
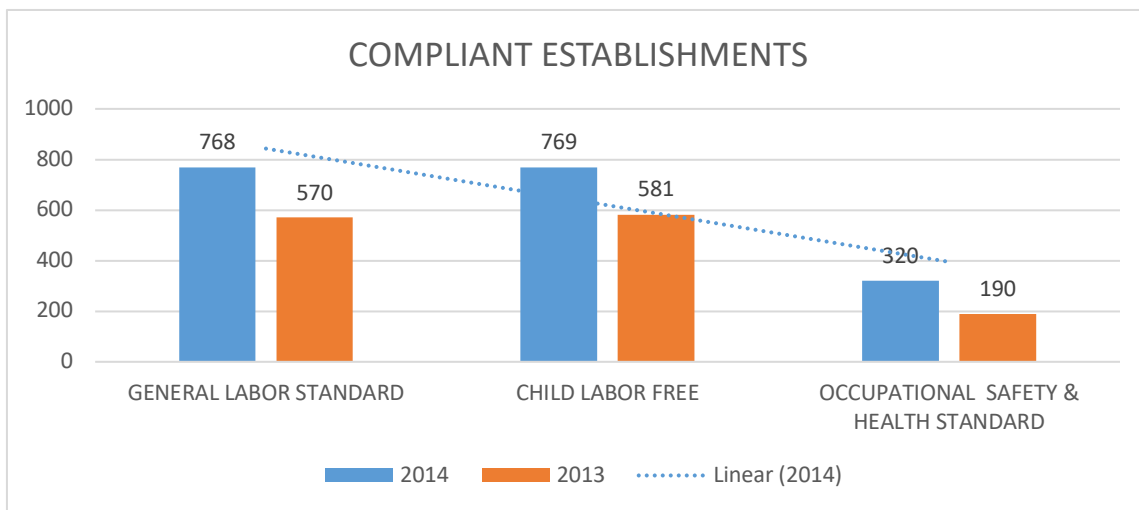
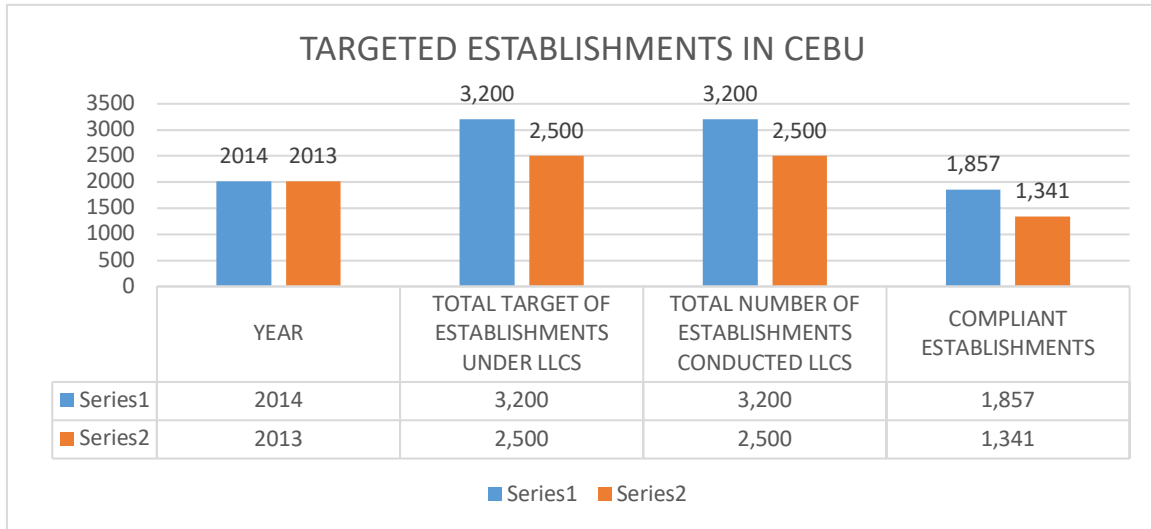
1. After the Regional Director assigned the LLCOs, who were the researchers, the establishments subject to Assessment, the Director correspondingly issued a Letter and an *Authority to Assess*; the LLCOs then proceeded to the establishments carrying the letter specifying the purpose of the assessment.
2. To determine compliance with labor laws and social legislations, the LLCOs reviewed the employment records, interviewed employees, and inspected the work premises in the presence of the representatives of the employers and employees. The representatives of the employees and the employer provided additional information or data for the LLCOs to consider.
3. When the establishments were formed to be compliant, the LLCOs issued the accomplished assessment checklist and the *Notice of Results* indicating compliance with labor laws. In the case of non-compliance, the LLCO provided the establishment the accomplished assessment checklist which indicates the noted deficiency. The gathered data were then analyzed using the qualitative and quantitative methods of research.

### Data Presentation

Tables 1 and 2 show the implementation profile to the labor law compliance.







### **Data Analysis**

Performance Statistics for 2014 show only 24% of covered establishment have complied with the Child Labor Free and the General Labor Standards specifically on statutory monetary benefits and social welfare benefits. There is a 1% increase from the previous year (2013). There is also a 2% difference on the compliance with regards to Occupational Safety & Health Standard. Over all, there is a difference of 4% between 2014 when LLCS was implemented and establishments compliance with it and 2013 when fewer establishments were aware of LLCS.

The results project that 76% of employers are still complying or failed to comply with the Labor Standards. Regarding the Occupational Safety and Health Standards (OSHS), the joint assessments done resulting to only 10% compliance tells that great majority of the establishment-owners are also still complying or need comply with the Labor Standards as well.

### **Conclusion**

Workers play a major role in the business community. They are the key to the growth and prosperity of the business world. These workers are the ones responsible for the products used by consumers. They are the people whose sweat and labor accumulate into savings that are raked back into the industries to become incremental investment or new capital. Some people take industrial laborers for granted. Imagine what would happen if there are no workers. Would products magically get assembled and become ready for use in the market? How would these products even get done? With advanced technology, more and more products get produced. However, even our most advanced technologies are results of labor productivity atop previous labor productivity.

Workers are invaluable to world economics. Every gamut of human society rely on labor sinews for the people's day-to-day existence. Farms produce agricultural products, factories churn out goods that eat, wear, live in and everything else that make modern society possible. Gold may be one of the most important economic commodities, but not an ounce of gold can ever be produced without hundreds of man-hours that extract the precious metal from the ore. This is why the government, through the Department of Labor and Employment, promulgated a set of laws to regulate the management of labor and to address the needs of workers.

These set of laws is called "The Labor Law". Labor Law or Employment Law mediates the relationship between workers (employees), employers, trade unions and the government. It either relates to the tripartite relationship between employee, employer and union or concerns the employees' rights at work and through the contract for work.

Labor Law goes way back during the Industrial Revolution. It arose in parallel with this contemporary phenomenon, at the time when the relationship between workers and employers changed from small-scale production to large-scale factories. Workers sought better wages, benefits and compensation while employers sought a more predictable, flexible and less costly workforce. Somewhere in-between stood the concern of the government on the general welfare. The state of labor law at any one time is therefore both the product of, and a component of struggles, between various social forces.

Labor Laws are made to govern and protect the rights of the workers, thus they are frequently amended to better suit the working class. Since people are naturally averse to *change*, every new strategy introduced to them in the usual environment is always met with negative attitude. Unfavorable outcomes may accompany the change



because people are apprehensive or wary of trying out something new and would usually just go with what had been done before.

The LLCS strategy is not perfect but it can be enhanced and improved, more so by maximizing its potential though through governance and purposive implementation, executing the law to the fullest extent of its spirit. The system is aimed in fostering a culture of voluntary compliance with labor laws and it had been thoroughly consulted with the private sector, through the *Tripartite Industrial Peace Councils*. The benefit of this system cannot be felt immediately by the stakeholders (workers and employers) but its relative to full success can be deduced from the absence of industrial lock-outs, strikes, labor protests and other counterproductive and antagonistic activities. That there is industrial peace and harmony in Cebu City is visible in plain sight.

### Recommendation

The very essence of the *Labor Laws Compliance System* (LLCS) is its non-conventional nature, that is, it helps the employers and workers work collaboratively for the promotion of voluntary compliance through the use of developmental approach inculcating a culture of compliance with labor laws; ensure fair, expeditious, and non-litigious settlement of disputes; encourage the use of diplomatic means of settlement in all cases involving labor issues; and strengthen tripartism among the establishment-owners, workers and government. The result of the LLCS in 2014 is a challenging reality to all Labor Laws Compliance Officers (LLCO) to adhere to the principle of educating, guiding and mentoring the management to be compliant to all labor standards according to this law. Some owners of establishments have their own varying reasons why some are still working to be compliant of the established standards. These reasons could include financial difficulties, loss of market, heavy competition, and many others. To validate the truth of the claims and the justifications could take time, and in the meantime, the interest of workers and that of the general welfare are already compromised. Also, accidents in the workplace are happening because of non-compliance on *Occupational Safety and Health Standards* (OSHS) that sometimes it cost the lives of workers. Labor Standards are minimum requirements in the workplace for everyone to follow in order to improve working conditions, employer-employee relations and productivity. The end of this law is not about exercising police power and impose the will of the State on its subjects, but of employing developmental approach that will actively engage all stakeholders to embrace voluntary compliance. For this reason, it is recommended that the LLCS shall continue in the assessment for establishments that are not yet compliant and in gently nudging yet actively encouraging the owners, the management and labor to be compliant. The Labor Laws Compliance Officer can serve as catalyst in the triggering of initiatives at compliance and of generating both awareness at enlightenment to the end that stakeholders shall view LLCS as a necessity and precursor of increased productivity. Labor education will be sustained to the end that management and the workers will view each one as indispensable partner in the quest for active compliance. The micro and small enterprises would specifically require preferential attention by Compliance Officers because they contribute to many instances of violation.

Also for the non-compliant establishments, it is recommended that during the *Mandatory Conference* (conference between the Management, representatives of labor and the Compliance officer) all deficiencies of the standards should be complied, if not immediately, but with an unrelenting drive sustained by all stakeholders. The compliance on Occupational Safety and Health Standard should be emphasized, not just because accidents constitute the bulk of work stoppage, and thus affects productivity, but because the lives of people are important. After all, the people are the reason why governments exist.

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## **Cultural Colors Used By Maranaos And Tausugs As Reflections Of Their Characteristics And Behaviors**

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### **Abstract**

Human's intelligence and social life are very much dependent with the existence of signs. Looking for signs and finding its meaning may vary from one person to another. Human lives are basically characterized by signs that are intertwined. Charles Peirce even equated life as "perfusion of signs."

In this study, a semiotic analysis was applied to identify the color semiotics and if it has an impact to the Maranao and Tausug culture when it comes to social interaction in school and in society. Theories of Peirce and Kress' multimodality were used. It was found out that true to the color semiotic analysis, the dominant colors used by the cultures Maranao and Tausug demonstrate their characters in dealing with the society.

The results showed that the use of signs and symbols are really important in meaning making. In cultural semiotic, the uses of these signs basically lead to the culture understands of themselves as well as the community. The signs and symbols were teamed together because the society see and believe in their connection. These colors were used unconsciously as part of their culture. The research also showed that the use colors are generally dictated by the cultures' lifestyle and behaviors.

Keyword: semiotics, culture, IRRC, colors, signs, Maranaos, Tausugs, community

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## Introduction

Human's intelligence and social life are very much dependent with the existence of signs. Signs are like the water to people and like wings to birds. Looking for signs and finding its meaning may vary from one person to another. Human lives are basically characterized by signs that are intertwined. Charles Peirce even equated life as "perfusion of signs." One of these signs that we make meaning of is color which is commonly used around the world to represent something (Danesi, 2004).

For Peirce, a color is a symbol which is conventional and that its meaning can be learned through interaction or exposure to society. Colors are indispensable in human's social and cultural life. They serve as signs for people to understand other's races, religions, cultures, traditions and even needs. Colors can have the ability to change people's moods and outlooks in life. According to Abrams (1990; cited in Blaufuks 2010), color can actually assist and accomplish a person's needs. Animals can use colors to help them look for food, it could stimulate children's senses and improve their motor skills at the same time. Colors can also serve as bases for territorial grounds, self-improvement, and aesthetics. One important contribution of color is that it allows people to create beauty and harmony and in return provide sense of accomplishment.

In everyday living, people use colors to represent certain things and these are often universally accepted. Take for instance, most school buses are yellow, taxis can either be yellow or white, the shape heart is red, and etc. The color psychology specifically studies color as a determinant of human behavior. In Wikipedia, this explains the relationship between color and the environment then studies the influence of a large number of factors (Bornstein, 1976). The color itself has a big influence in the visual appearance of things, people or even products. In general, colors are a kind of a non-verbal communication. Communication is the art in which information like ideas, thoughts, concepts and attitudes is transferred from one person to another by using symbols or signs like words, pictures, figures and even graphs. It is a process that involves passing a stimulus from a source to another and can be identified as either verbal or non-verbal. Moreover, the physiological and emotional effect of color can be influenced by several factors such as people's past experiences, culture, religion, nature, gender, race, and nationality. The thought of choosing a color in each person can influence the message in which a communication is based on. The color that people choose should be carefully selected for key messages and emotions align together as one.

Few researches show that, in advertising, the color could actually affect the preferences of the consumers in which spread to purchasing culture. In the basic sign theory, the culture plays an important role in the emergence of semiology, the study of signs and its meaning. The culture represents a system of signs that eventually connects with the real world. The first few beginnings of the study of signs are basically associated with culture then to colors. Cultures around the world exist on the presence of color to represent personality, meaning and preference.

Colors are essential in a community's life. It distinguishes one culture from another. The dominance of colors also varies from one to another. Two cultures are focused in this study because these are the ones that live by colors. They might not know that they express their thoughts and ideas through the impact of colors. These cultures are both found in the Mindanao Island of the Philippine and both may have come from the Malay race. These two Moro cultures use vibrant colors to represent them as a community. These cultures are the Maranaos and the Tausugs.

The Maranaos inhabit the Lake Lanao in Mindanao (Philippines) and it is originally derived from the Iranon dialect 'Maranaw' which means 'People of the Lake'. The Maranao community is part of the wider Moro group and considered to hold the record as the largest Moro ethnic group. The Maranaos dominantly dwell in Marawi City. The Maranao villagers were originally farmers and fishermen and they are also known for their creativity. They sell all types of arts around the Philippines (<http://www.everyculture.com/East-Southeast-Asia/Maranao.html>). The creativity of the Maranaos resulted to their colorful crafts as well as in their architecture. These colors then serve as a distinctively 'Maranao.'

Like the Maranaos, the Tausugs also dwell in the Mindanao area specifically in Sulu, Basilan and Tawi-Tawi. They originally came from three countries the Philippines, Malaysia and Indonesia and its name was derived from



two words, the 'tau' and 'sug' which when combined mean "people of the current." Just like the Maranaos too, they are part of the Moro group. The Tausugs converted to Islam, although no specifics were recorded, when the late Sung and Arab merchants opened a direct trading. The Sulu, nowadays, is a major center of Islamic separatism and is the birthplace of the founding leaders of the Moro National Liberation Front. The Tausugs are experienced sailors and they are known for their colorful *vintas*. They also use colorful materials that have become their trademarks as well.

### Statement Of Objectives/Problem

This study was undertaken to identify and analyze the different dominant colors used by the Maranao culture. These colors were grouped, classified and labeled using the color semiotic analysis with the help of basic sign theories, cultural semiotics as leading to social semiotics. Once these colors are analyzed, the researcher made conclusions about the Maranao culture's lifestyle and characteristics. Findings of the inquiry can help people who are always fascinated with the Maranao choices of colors in their clothing, decorations and activities. It also aimed to help people Filipinos and tourist alike to understand the social behaviors and cultural behaviors of Maranao.

Given the above problem and aims, this study sought to know the answers to the following questions:

1. What are the dominant colors present in Maranao and Tausug's clothing, arts and events?
2. What do these signs represent and mean?
3. What interpretations do these colors mean to describe the lifestyle and characteristics of both Maranaos and Tausugs?
4. What are the similarities these two cultures have in terms of characteristics and lifestyle using the color semiotics?

### Methodology

The pictures illustrating the Maranao and Tausug traditional arts and clothing were subjected to analysis by identifying their consistent or dominant color usage. These colors then were further studied and used for analysis by searching for the meaning it has in relation to the cultures' lifestyles and characteristics. Theories on Semiotic Analysis and fields of semiotics were used to study the finding. After which, the two cultures were compared and contrasted. The main aim is to know how these colors affect the cultures' social interaction and social life.

### Results And Discussions

Problems 1 and 2. What are the common colors present in Maranao and Tausug's clothing, arts and events? What interpretations do these colors mean to describe the lifestyle and characteristics of both Maranaos and Tausugs?

Both the Maranaos and Tausugs are fond of colorful colors when it comes to their tradition events, traditional clothing as well as arts. As mentioned, the use of colors has been etched in every social or cultural group. There were no reasons probably why people stick to certain colors that represent a culture but unconsciously, a culture has distinctive colors that might be dictated by their culture. The following pictures demonstrate the dominant colors present in each culture.

Using the images presented in the previous pages, the results showed the following:

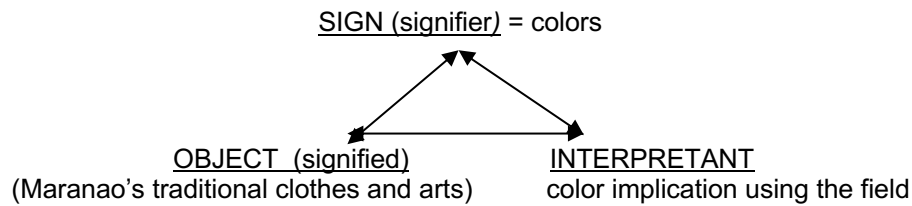
| Dominant colors used by the Maranao Culture | Dominant colors used by the Tausug Culture |
|---------------------------------------------|--------------------------------------------|
| Yellow                                      | Pink                                       |
| Green                                       | Blue                                       |
| Red (Maroon)                                | Gold/yellow                                |

Table 1. *Common colors found in the cultures Maranao and Tausug*

Colors are important and more likely as useful as a language—it is a form of communication. Colors can represent lots of things and these are unique because colors are the signs, modes and representation of a cultural meaning. Using Peirce' theory of signs, here is triangular image of color association with meanings:







### The Maranao Culture



Image 1: *Kapag Apir Apir*  
Peirce' and Kress' theories:  
 Colors as signs: yellow, red and green  
 Object: fans and clothes  
 Channel: traditional dance



Image 2: *Malo- Malong*  
Peirce' and Kress' theories:  
 Colors as signs: Yellow and red (maroon)  
 Object: headpiece and clothes  
 Channel: traditional dance/ pictorial



Image 3: *Royal Umbrella*  
Peirce' and Kress' theories:  
 Colors as signs: Yellow, green and blue  
 Object: umbrella  
 Channel: art



Image 4: *Kandori* (thanksgiving)  
Peirce' and Kress' theories:  
 Colors as signs: yellow, red (maroon) and green  
 Object: clothes and decoration  
 Channel: event



Image 5: *Awang*  
Peirce' and Kress' theories:  
 Colors as signs: Yellow, green and red  
 Object: decoration  
 Channel: vessel

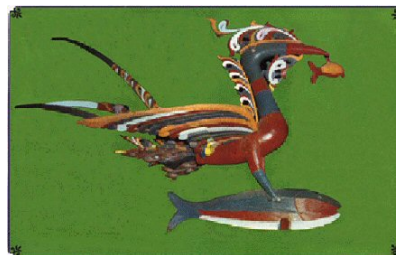


Image 6: *Sarimanok*  
Peirce' and Kress' theories:  
 Colors as signs: Red, blue and yellow  
 Object: decoration  
 Channel: art

With the images combined and analyzed, it showed that the Maranao culture dominantly use the colors red, yellow and green. Using the color semiotics, these colors represent:

*Red.* As analyzed in semiotics, refers to extroverts and dominantly applicable for men. By nature, Maranaos respect women but in their culture, men do the work and are more exposed to physical things. Maranao women are considered introverts because they are required to tend to their children and home rather than other tasks outside the premises of home. Although Maranao women are now more liberated, they are generally thought to be more reserved and careful. The dominance of the color red in their culture may refer to the dominance of men in the society. It reflects the superiority of the male race over the women as well as how extroverts the men are. The men are responsible for their homes and they are expected to do things to protect and feed the family.

Red also symbolizes danger. Danger in all aspects and can be associated with anger, blood or temper. This dominance may come negatively but by nature, Maranaos are considered hot tempered. They get easily angered by things beyond their control. The Maranao culture is known for their feuds. These feuds are often fueled by bloodline competition, conflicts caused by misunderstandings and uncontrolled anger.

Although red appears intimidating and negative, it has still positive representations. It demonstrates love, confidence, success and triumph. The Maranaos take pride seriously but when shown great respect can demonstrate great love. Red is used for ceremonies to show success and confidence. The Maranaos often use the color as head piece or gear to demonstrate their confidence and energy. The color exudes self- assurance when performing or when showing power and strength. Maranaos, especially men and elders, always act and appear powerful.

*Yellow.* This is a color that is dominantly seen on almost every traditional artifacts or cloth the Maranaos have. Yellow represents positivity and happiness. Not on culture would disagree that happiness and optimism are needed to make a happy and successful community. This color is more prevalent in the Maranao culture because it exudes positive energy and promising future. It shows prosperity. Although Maranaos are naturally hot tempered, they can have a very happy disposition. Their regular conversation and tea time are filled with laughter. The laughter often sounds so loud as if it appears like they are quarreling. A small gathering with Maranao friends is equivalent to a grand reunion to some cultures. Maranaos are innately festive and loud. They see things optimistically that it sometimes appear as arrogance or conceitedness to some.

What is distinctively unique is that yellow is a symbol for merchant. It is indeed true, Maranaos are very business minded. They can be seen in every place in the Philippines as traders or businessmen. Mostly, Maranaos feel the need to always look for a source of living. Since ancestors were not educated by schooling, they resorted to a more practical means of living--- business. Up until now, Maranaos traders are still everywhere. The color yellow instills energy and spark creative thoughts.

The color yellow also shows royalty. The Maranao culture is conscious with royalties and ranks. They still keep the lineage intact by pointing the rightful 'datus' and 'bae-a-labis'. They have adopted such interest from the Malays. The importance of ranks and prestige play an important role to their social and political life. Now, Maranaos still have same cultural heads but do not have the same powers as the modern politicians. These 'heads' serve as negotiators and partners for keeping the community intact.

*Green.* Although the color is not as dominant as the red and yellow, it is still ubiquitously used in almost all Maranao artifacts and cloth. The color green generally means balance and harmony. Just like most cultures, the Maranao culture try to keep a harmonious life. They try to live a well balanced kind of life. The Maranaos, like the green sign, reveal love for family. They are every clannish in nature and they always believe in blood ties and close relationships. They also have the tendency to be possessive and feel like they own people but at the end, they still are lover of a balanced life and are open for possible growth.



## The Tausug Culture



Images 1 and 2: *pangalay*  
Peirce' and Kress' theories:  
Colors as signs: Blue, pink, gold  
Object: *Silk pants, blouse and sablay*  
Channel: art



Images 3: *Welcome presentation*  
Peirce' and Kress' theories:  
Colors as signs: pink, blue, maroon and gold  
Object: clothes and decoration  
Channel: event



Images 4: *Vintas*  
Peirce' and Kress' theories:  
Colors as signs: pink, blue, yellow, green and red  
Object: vessel  
Channel: transportation



Images 5: *Traditional Mat*  
Peirce' and Kress' theories:  
Colors as signs: pink, blue, yellow, red and green  
Object: mat  
Channel: art

The pictures presented showcased the traditional Tausug colors common used in their arts and clothing. These colors are: pink, blue and gold/yellow. Using the color semiotics, these colors represent:

**Pink.** Universally, people think that pink is a feminine color but in color semiotic, it represents something else. Pink is equated with calmness and tenderness. It portrays a softer said of all things and is very calming to look at. The Tausugs are relatively calm. Unlike other cultures, they have a softer tone and intonation. They are not so into chaotic transactions. They prefer to be in a backseat and observe. Like pink dominance in their culture, it symbolizes them being tender and peace loving people. They use sweet endearments to acknowledge people and often kind to visitors. The color pink also shows innocence. Just like other people in remote areas, Tausugs are innocent with new technology and other new inventions.

The color pink also equates to empathy and sensitivity. Although they are calm, Tausugs are rather sensitive. They get emotional easily compared to others. They keep the criticisms or negative vibes seriously. Because of the color pink, the Tausugs' arts and clothing convey their emotional energies in which can alleviate feelings of aggression, resentment and abandonment. When triggered, Tausugs can be as aggressive and can create havoc. Since they are emotional or so sensitive, there is the tendency that their fuses get burned easily especially when they are neglected or when they feel they are being oppressed or discriminated. They may be sweet and tolerant but like pink, they can be overly emotional and overly cautious.

**Blue.** This is one of the colors that is well loved by many and often represent 'male' color. Blue, in colors of semiotics, means loyalty, tactful and reliability. Since Tausugs are sensitive, they take relationship seriously. They



are very affectionate and loyalty for them is very important. They are formal and diplomatic and sometimes timid. If you visit provinces that are mostly dwelled by Tausugs like Sulu, Basilan and Tawi-Tawi, you can sense their being reliable. They work hard and do not play hard. In recent time, there are more liberated Tausugs but generally they are conservative and are caring. They are not spontaneous and think things first before anything else. They take time to process their feelings. They stick to what they think is right and to their beliefs.

The dominance of blue for them is like showing the world how devotional and responsible they are. They are very conscious with being idealistic yet they are very much passive. By nature, Tausugs are also superstitious. Because of their being superstitious, they appear conservative or old fashioned to some. The color blue also means protection. The Tausugs are territorial. They die and defend their rights down to death. Since they are emotional, they can be unreasonable too when pressured. They take things into their hands. Tausugs naturally look weak and quiet but can fight like no other.

*Gold/Yellow.* This color basically appears in most cultures but the use of yellow for Tausugs would show their being cheerful and optimistic. Once well acquainted, they can be very fun. They see things in a positive way. They appear calm and quiet but they are strong-willed people. It shows that even if they are seen as passive, sweet and calm, they also aim for prosperity and are hopeful. Naturally, Tausugs are not boastful but royalty also is very important to them. Coming from a lineage of people with 'royalty' blood means getting special treatment and respect from other land dwellers.

Gold also is a color that usually substitutes the yellow color and it demonstrates how Tausugs can also be extravagant. They show off their wealth by attaching 'gold' accents.

*Problem 4.* What are the similarities these two cultures have in terms of characteristics and lifestyle in terms of color semiotics?

The Tausug culture is as vibrant and bright as that of the Maranao culture. Both cultures existed on the same Island of Mindanao for many years and fought to keep their lands. There are no known major conflicts between these two cultures although many kept on comparing one culture to another. In terms of color choices, it showed that there are no significant color that are similar to both except the color yellow/gold. Both cultures have a happy disposition and are cheerful by nature. They like the color yellow to demonstrate 'royalty' blood as well as extravagance and wealth. Although the color yellow is more dominant in the Maranao culture, both cultures are still known for their being courageous and brave.

## **Conclusions**

The findings of the research showed that the use of signs and symbols are really important in meaning making. In cultural semiotic, the uses of these signs basically lead to the culture's understanding of themselves as well as the community. The signs and symbols were teamed together because the society see and believe in their connection. The culture becomes the interpretant in which making meanings become possible. In visual and communication theory, the arts and clothes were used by each culture to convey meanings unconsciously. It tells what and who they are as a society. These arts, clothes and even events were the different 'mode' people take to transfer one meaning to another. The ways on how things given meaning vary on what 'mode' or channel was used to come up with an interpretation. In this study, it showed that the colors that were dominant in most cultures like that of Maranaos and Tausugs represent what the culture's lifestyle and characters are. These colors were used unconsciously chosen as part of the culture. The research also showed that the use colors are generally dictated by the cultures' lifestyle and behaviors.

## **Recommendations**

Based on the results, the following are recommended:

1. Cultures should preserve and protect cultural heritage for it basically demonstrate the life of the community.
2. Cultural signs should be taken in consideration when dealing with the community.
3. The Philippines should be able to protect and explore its rich culture.
4. The color psychology should be further analyzed for a deeper perception about a community's life.





5. Understanding these cultural behaviors and attribute it to color choices can give ideas to future researchers to preserve the same endeavor by studying other cultures and use contrasts.

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## Embedding Logistic Regression Model in Decision Support Software for Student Graduation Prediction

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### Abstract

Logistic regression is a predictive modeling technique that finds an association between the independent variables and the logarithm of the odds of a categorical response variable. This is one of the techniques used in analyzing a categorical dependent variable. The study focused on the application of the logistic regression in predicting student graduation by generating data models that could early predict and identify students who are prone of not having graduation on time, so proper remediation and retention policies can be formulated and implemented by institutions.

The student graduation rate is the percentage of a school's first-time, first-year undergraduate students who complete their program successfully. Most students' first year freshmen enrolled in tertiary level failed to graduate. According to National Center for Education Statistics, almost half of the first time freshmen full time students who began seeking a bachelor's degree do not graduate. The colleges and universities consisting of high leaver rates go through loss of fees and potential alumni contributors.

Keywords: logistic regression; algorithm; data mining; student graduation; prediction; analytics; data; accuracy; classification algorithm

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## Introduction

More recently, researchers and higher education institutions are also beginning to explore the potential of data mining in analyzing academic data. The goal of such endeavor is to find means to improve the services that these institutions provide and to enhance instruction. This type of data mining application is more popularly known as educational data mining or EDM.

At present, EDM is more particularly focused on developing tools that can be used to discover patterns in academic data. This area of EDM is often referred to as Learning Analytics – at least as it is commonly compared to more prominent data mining approaches which process data from large repository for better decision-making (Ahmed, 2014)<sup>[1]</sup>

However, EDM can also be used to improve the performance of HEIs. One example is in the area of enhancing Student Graduation. If EDM can be used to discern the patterns of attributes that lead to the increase/decrease of Student Graduation, administrators can use it to make sense of what is happening, and enable them to predict possible outcomes and take more appropriate action.

In the Philippines According to National Statistic Office, there is an imbalance between the student enrolment and student graduation. Almost half of the first time freshmen full time students who began seeking a bachelor's degree do not graduate. This scenario indicates the need to conduct research in this area in order to build models that can help improve the situation.

### *Background of the Study*

The proposed study is an applied research (Roll Hansen, 2009)<sup>[2]</sup> focused on analyzing student graduation rate (SGR). SGR is the percentage of a school's first-time, first-year undergraduate students who complete their program successfully. Studies show that most freshmen students enrolled in tertiary level do not graduate.

According to (Lu, 1994)<sup>[3]</sup> part of the reason is because they are underprepared to make a successful transition from high school to college. Seidman (2005)<sup>[4]</sup> in the other hand, defines student retention as the "ability of a particular college or university to successfully graduate the students that initially enroll at that institution.

Research studies from HEIs already indicated that early identification of leaving students and intervention program are key to understanding what factors lead to student graduation.

Institutions should utilize Siedman's retention formula for student success: RETention = Early (Identification) + (Early + Intensive + Continuous) Intervention. As such, early identification of potential leavers and successful intervention program(s) are the key for improving student graduation.

Addressing this problem is critical because universities with high leaver rates go through loss of fees, tuition, and potential alumni contributors (DeBerrad, Spielmans, & Julka, 2004)<sup>[5]</sup>. The early identification of vulnerable students who are prone to drop their courses is crucial for the success of any retention strategy and helps improve and increase the chance in staying in course chosen. According to Raju (2011)<sup>[6]</sup>, predictive modeling for early identification of students at risk could be very beneficial in improving student graduation. Research studies show that early identification of leaver students and intervention programs are key aspects that can lead to student graduation.

## Research Questions

The three specific research questions that this study aims to address are the following:

1. How effective logistic regression algorithm in predicting student graduation?
2. What data model be created that improves the accuracy of predicting student graduation?
3. How effective and usable is the design of the Student Graduation Prediction prototype based on the evaluation of administration?



### *Literature Review*

#### *Data Mining*

Data Mining is application of a specific algorithm in order to extract patterns from data. KDD has become a very important process to convert this large wealth of data in to business intelligence, as manual extraction of patterns has become seemingly impossible in the past few decades. Data Mining is a step inside the KDD process, which deals with identifying patterns in data. It is only the application of a specific algorithm based on the overall goal of the KDD process.

#### *Logistic Regression*

Logistic regression is a statistical method for analyzing a dataset in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable. It is a basic tool for modeling trend of a binary variable depending on one or several regressors (continuous or categorical). From the statistical point of view, it is the most commonly used special case of a generalized linear model. At the same time, it is also commonly used as a method for classification analysis (Agresti, 1990)[7].

#### *Related Works*

Schuman (2005)[8] proved that the cross industry standard process for data mining can be a good use to academic analytics. The methodology was development and has been applied in an industry based domain sets to determine relationship among sets of variables and possibility to be applied to student achievement and behaviors. Data mining can be widely used for education as it can determine the variables influencing their students' achievement in both elation and caution using the data mining methodologies as a tool to improve student achievement.

Goker (2012)[9] used accuracy rate and error estimation as basis to determine the effectiveness of the algorithm. The study reveals that Bayes classifier was selected as having the highest performance measure

Luna (2000) focused classification models include logistic regression and decision tree algorithm. The research concentrated on determining the classification models of different outcomes with acceptable prediction rates. These outcomes were based upon student retention and academic success. The study concluded that logistic regression got the highest classification rate

### **Methodology**

The researcher used the steps of Knowledge Discovery in Databases and CRISP-DM methodologies in creating the study.

There are two-step processes of data classification. The training sets of data is determined by analyzing a set of training database instance until a data model will be built that describes a predetermined set of classes or concepts.

The second step is testing data; the model is tested using a different data set that is used to estimate the classification accuracy of the model. If the accuracy of the model is acceptable, the model can be used to classify future data instances for which the class label is not known. The researcher used decision tree in predicting student graduation

#### *Data sets and Attributes*

The attributes used in the study consists of demographic profile, first year first term grades and entrance examination.



Table 1. Attributes Description  
 Data Sets and Attributes

| Name                  | Role   |
|-----------------------|--------|
| Graduation_status     | Target |
| Gender                | Input  |
| School_Year           | Input  |
| Location              | Input  |
| Scholarship           | Input  |
| Verbal_Equivalence    | Input  |
| Science_Equivalence   | Input  |
| Numeric_Equivalence   | Input  |
| Abstract_Equivalence  | Input  |
| General_Point_Average | Input  |
| Algebra               | Input  |
| English               | Input  |
| IT_Fundamentals       | Input  |
| Programming_1         | Input  |
| Physical_Ed           | Input  |
| Values_Ed             | Input  |

Variable Descriptions Graduation status – Target Variable – Labeled 0 was coded for students who failed to graduate on time and 1 was coded for students who graduated on time. Gender – Students Gender - Labeled 1 was coded for the male students and 2 was coded for female. Location – Location of the Students – Labeled 1 was coded for students who are living in Metro Manila and 2 was coded for students who are living outside Metro Manila. Scholarship - Financial assistance given by the school –Labeled 1 was coded for students who availed financial help, and 2 was coded for students who were not given financial assistance. Entrance Examination Results – The entrance examination were composed of Abstract, Verbal, Numeric and Science. The four categories of entrance examination were set as categorical particularly ordinal type of data sets.

First Year First Term Grade - The first year first term subjects were composed of Algebra, IT fundamentals, Programming, English, Values Education and Physical Education. Values of this section were set as categorical particularly ordinal.

### Modeling

Logistic regression uses the Logit model. It provides an association between the independent variables and the logarithm of the odds of a categorical response variable. Since the target variable *graduation* is a binary (yes/no) response a binary logistic regression model was used. Logistic regression analysis applies maximum likelihood estimation after transforming the dependent variable (graduation) into a Logit variable. Logistic regression will estimate the odds that an existing student graduated or not graduated.

### Evaluation

Table 2. Classification Rate Table

| Predicted | Performance Measure of the Algorithm |                |                |
|-----------|--------------------------------------|----------------|----------------|
|           | Yes                                  |                | No             |
|           | Yes                                  | True Positive  | False Positive |
|           | No                                   | False Negative | True Negative  |

To determine the accuracy level of the classification table of the algorithms the formula were used where TP Number of actual outcomes of graduation 'yes' accurately classified as predicted graduation 'yes'. TN Number of actual outcomes of graduation 'yes' inaccurately classified as predicted graduation 'no'. FN Number of actual outcomes of graduation 'no' inaccurately classified as predicted graduation 'yes'. TN Number of actual outcomes of graduation 'no' accurately classified as predicted graduation 'no'

### Results and Discussion

Answering Question No.1 entails to use logistic regression where all predictors are significant, ( $p < .05$ ) was considered. The resulting significant predictors of status were then processed using Decision Tree Algorithm.



Table 3. Logistic Regression Values in the Equation

| Values in the Equation    |          |             |             |                        |
|---------------------------|----------|-------------|-------------|------------------------|
|                           | <i>B</i> | <i>S.E.</i> | <i>Wald</i> | <i>Odds Ratio (OR)</i> |
| Gender (X1)               | 0.888    | 0.196       | 20.613      | 2.44                   |
| Scholarship (X2)          | 0.999    | 0.283       | 12.243      | 0.36                   |
| Verbal Equivalence (X3)   | 0.307    | 0.081       | 14.234      | 1.29                   |
| Abstract Equivalence (X4) | 0.25     | 0.076       | 10.726      | 1.29                   |
| Algebra (X5)              | 0.289    | 0.138       | 4.403       | 1.33                   |
| IT Fundamentals (X6)      | 0.43     | 0.131       | 10.846      | 1.54                   |
| Programming1 (X7)         | 0.567    | 0.13        | 19.129      | 1.77                   |
| Programming1 (X7))        | 0.423    | 0.133       | 10.084      | 1.53                   |
| Constant                  | 5.716    | 0.842       | 46.119      | 0.004                  |

Analysis of the data reveals that eight variables significantly predicts graduation status, namely: gender ( $B=.888$ ,  $p<.01$ ,  $OR=2.44$ ), scholarship ( $B=-.991$ ,  $p<.01$ ,  $OR=.36$ ), verbal ( $B=.307$ ,  $p<.01$ ), abstract ( $B=.250$ ,  $p<.01$ ,  $OR=1.29$ ), algebra ( $B=.289$ ,  $p<.05$ ,  $OR=1.33$ ), IT fundamentals ( $B=.430$ ,  $p<.01$ ,  $OR=1.54$ ), programming ( $B=.567$ ,  $p<.01$ ,  $OR=1.77$ ) and values ( $B=.423$ ,  $p<.01$ ,  $OR=1.53$ ). Moreover, the data fit the model statistically as shown by the goodness of fit test, called Hosmer Lemeshow Test, with nonsignificant chisquare ( $Chisquare = 5.393$ ,  $df=8$ ,  $p >.05$ )

Gender has a positive B coefficient, indicating that female students (coded 2) have higher odds of graduating than male students (coded 1). Female's odds of graduating is 2.44 times higher than males. On the other hand, the negative B coefficient in scholarship indicates that students without scholarship (coded 2) have lower odds of graduating as compared to those with scholarship (coded 1). The odds of graduating for those with scholarship is almost three ( $1/.36=2.78$ ) times higher than those without scholarships.

The B coefficients for verbal analogy and abstract reasoning as components in the entrance examination of the university are positive, indicating that the higher the scores of the students in the verbal analogy and abstract reasoning components, the higher the likelihood that they will graduate to the program that they enrolled. The odd ratio of 1.29 for both verbal analogy and abstract reasoning indicates that for every one (1) point increase in the score in verbal analogy or abstract reasoning, the likelihood of finishing the degree increases by 1.29 times.

The same pattern of data can be observed in the grades of the students. That is, the B coefficients of the academic subjects such as algebra, IT Fundamentals, Programming 1, and values education are positive, indicating that the higher the grades of the students on such subjects the higher the odds of completing the degree.

#### *Accuracy Results of Logistic Regression in Predicting Student Graduation*

Table 4. Classification of Logistic Regression Algorithm Results

| Observed           | Percent Correct |
|--------------------|-----------------|
| 0                  | 94.7%           |
| 1                  | 49.2%           |
| Overall Percentage | 87.4%           |

The table above reveals that logistic regression recorded a an accuracy rate 87.4.

Answering Question No.2 entails to determine data models that can be generated by Logistic Regression Algorithm.

#### *Logistic Regression Equation Result*

The values in the equation found on Table III of the logistic regression can be written in equation form. Following the equation of logistic regression discussed in Agresti (1996),



The logistic function can take an input with any value from negative to positive infinity, whereas the output always takes values between zero and one and hence is interpretable as a probability. The logistic function can be written as

$$\text{logistic}(x) = \frac{1}{1 + e^{-x}}$$

$$p(y = 1 | \mathbf{x}, \mathbf{a}) = \text{logistic}(a_1 x_1 + a_2 x_2)$$

Fig1. Logistic Regression Formula

The probability of graduating can be expressed as a function of the predictors as follows:

$$\text{Prb (grad)} = \frac{1}{1 + e^{-(5.716 + .888 * x_1 - .991 * x_2 + .307 * x_3 + .250 * x_4 + .289 * x_5 + .430 * x_6 + .567 * x_7 + .423 * x_8)}}$$

Such equation can be used to compute the probability of graduating for incoming students in the university. The resulting probability can be used as basis in classifying students whether they will graduate or not. To classify whether a student will graduate or not, a .50 probability cut-off are used in practice. That is, a student is classified as not graduated if the resulting probability is .50 or lower and classified as graduated if the resulting probability is greater than .50.

To determine and evaluate the goodness-of-fit of a logistic regression model it will be tested based on the simultaneous measure of sensitivity (True positive) and specificity (True negative) to possible cut of points through receiver operating characteristic curve.

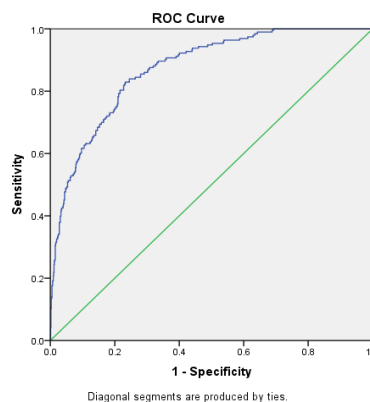


Fig2. ROC Curve of Logistic Regression Model

Table 5. Test Results Area Under the Curve

| Area Under the Curve                           |                         |                              |                                    |             |
|------------------------------------------------|-------------------------|------------------------------|------------------------------------|-------------|
| Test Result Variable(s): Predicted probability |                         |                              |                                    |             |
| Area                                           | Std. Error <sup>a</sup> | Asymptotic Sig. <sup>b</sup> | Asymptotic 95% Confidence Interval |             |
|                                                |                         |                              | Lower Bound                        | Upper Bound |
| .872                                           | .013                    | .000                         | .846                               | .897        |

The results in the table V reveals that output shows ROC curve. The area under the curve is .872 with 95% confidence interval (.846, .897). Also, the area under the curve is significantly different from 0.5 since p-value is .000 meaning that the logistic regression classifies the group significantly better than by chance.



Since the model classifies group significantly better by chance, the generated data model of the logistic regression were then tested to new testing sets of data.

Finally, the third research question addresses the issue of measuring the perspectives of the end-users with regard the software quality characteristics of the developed prototype consisting of the data models of logistic regression. . A questionnaire was circulated to guidance officer and head of the Information Technology Department and predictive analytics expert who validated the results asking them to rate the prototype software. Response for the items was measured using five-point Likert scale.

Table 6. Summary of the Weighted Mean of the Five (5) Criteria for Descriptive and Predictive Analytics' of the Student Graduation Prototype.

| Likert Scale  |                                 |                 |
|---------------|---------------------------------|-----------------|
| Criteria      | Expert's Response Weighted Mean | Interpretation  |
| Functionality | 4.55                            | Very Acceptable |
| Design        | 4.55                            | Very Acceptable |
| Usability     | 5.00                            | Excellent       |
| Reliability   | 4.6                             | Very Acceptable |
| TOTAL         | 4.69                            | Very Acceptable |

Overall the Descriptive and Predictive Analytics' of Student Graduation Prototype based on the respondents response recorder a mean performance of 4.69 with an interpretation of Very Acceptable.

## Conclusion

The study aimed to develop a framework that can be used as a basis in creating a predictive analytics software prototype for student graduation using decision tree algorithm. This will early identify students who are vulnerable of not being able to graduate on time so proper retention policies can be formulated by the administration Logistic regression has an accuracy rate of 87.4 in predicting student graduation and the overall acceptability of the Descriptive and Predictive Analytics' of Student Graduation Prototype based on the respondents' response recorded an overall mean of 4.69 which has an interpretation of Very Acceptable and concluded that the software can be now used for implementation.

The system has plenty of space for further improvements that future researchers might want to follow through: The continuous study of student graduation rate for new incoming data sets so data it can become voluminous and new patterns can be discovered. The study can be applied to other disciplines or courses. The report generation of the prototype can be improved by having archives of reports every year. Possible algorithm combinations can be applied to test sets of data.

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## **Hemispheric Brain Dominance and Mathematics Performance of Western Visayas College of Science and Technology Students - Phase IV**

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### **Abstract**

This is the last phase of a four-year study which aimed to determine the significance of the difference in the mathematics (math) performance of the participants when grouped according to their hemispheric dominance (HD). The study was anchored in the Split Brain or Lateralization Theory of Roger Wolcott Sperry which states that the brain is divided into two hemispheres, the left and the right hemisphere. The participants were eighty-eight (88) fourth year college students from the courses of Bachelor of Science in Mathematics (BSM), Bachelor of Science in Education major in Mathematics (BSEd), Bachelor of Science in Electrical Engineering (BSEE), Bachelor of Science in Electronic and Communication Engineering (BSECE), and Bachelor of Science in Mechanical Engineering major in Automotive Engineering (BSMEAE) at Western Visayas College of Science and Technology SY 2014-2015. The participants' HD was determined by the use of a researcher-made 46-item Hemispheric Brain Dominance Test while their mathematics performance was based on their Math classes average final grades. The statistical tools used were the mean, standard deviation, Mann-Whitney, Kruskal-Wallis, and Post hoc tests. The hypothesis was set at 0.05 alpha level. As an entire group, the left brain was the dominant brain hemisphere among the participants from phase I to phase IV. When the participants were grouped according to program in phase I, the BSM, BSEd and BSMEAE were left-brain dominant while the BSEE participants were right-brain dominant. The BSECE had equal number of left-brained and right-brained participants. In phase II, the dominant brain hemisphere was the left brain. Only the BSEE participants were right-brain dominant. In phase III, the dominant brain hemisphere was the left brain, except for the BSMEAE where there was an equal number of left-brained and right-brained participants. In phase IV, all participants from the different programs were left-brained. Only the BSEE participants were right-brain dominant. As an entire group, phase I and II participants had "fair" mathematics performance; phase III had "good" mathematics performance; and phase IV had "very good" mathematics performance. When the participants who were right-brained were grouped according to mathematics performance, phase I had "conditional" mathematics performance; phase II and III had "fair" mathematics performance; and phase IV had "good" mathematics performance. Those who were left-brain dominant had "fair" mathematics performance in phase I, "good" mathematics performance in phase II and III, and "very good" mathematics performance in phase IV. In all phases of the study, significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric brain dominance. The "left-brained" performed better in mathematics than the "right-brained". There was a significant decrease in the enrolment of participants who were right-brain dominant because they shifted to other courses or they transferred to other schools. In phases I, II and III, significant differences existed in the level of mathematics performance when the participants were grouped according to their program. There is no significant difference in the hemispheric brain dominance of the participants when grouped according to the phase of the study. This implies that the slight changes in the hemispheric brain dominance of the participants were not significant in the last four years.

**Key words:** Hemispheric Brain Dominance

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## Introduction

Roger Sperry's Split Brain or Lateralization Theory states that the brain is divided into two hemispheres: the right brain and the left brain. The left side of the brain controls the right side of the body and is responsible for analytical, linear, verbal and rational thought. The left hemisphere deals with hard facts: abstractions, structure, discipline and rules, time sequences, mathematics, categorizing, logic, rationality and deductive reasoning, knowledge, details, definitions, planning and goals, words (written, spoken and heard), productivity and efficiency, science and technology, stability, extraversion, physical activity, and the right side of the body. Hemisphericity is the cerebral dominance of an individual in retaining and processing modes of information on his/her own style of learning and thinking (Raina, 1984 in Humera, 2013).

According to Coulson & Strickland (1986), Herrman (1982), and Katz (1983), academic subjects such as arts, the humanities, and architecture are believed by several researchers to require a more global, synthetic, and spatial orientation which are suitable for right-brain dominant students, whereas other subjects such as science, engineering, and language emphasize logic and verbal analysis are better fit for left-brain dominant students. Studies have suggested that brain hemisphericity is associated with different occupations and academic majors (Kolb, 1979; McCarthy, 1996). Likewise, Alvaro (2006) states that the left-brain hemispheric oriented college students preferred to read, write, analyze, speak, work with numbers, and other activities with analytical functions and sequential order, while the right-brain hemispheric oriented students preferred the finer things in terms of creativity and aesthetics.

By knowing the dominant brain type of a student, the mentor will know most likely if the student will succeed in his chosen field of specialization. This study is based on the premise that left-brain dominant students are most likely to succeed in Mathematics subjects. The researchers had observed that for the past years, some students who were enrolled in Math-laden programs had dropped-out because they failed in their field of specialization or mathematics. Motivated by the need to increase the number of successful graduates with specialization on Math-laden programs, this study was conducted. Phase I of the study was conducted in SY 2011-2012, phase II in SY 2012-2013, and phase III in SY 2013-2014.

## Statement of Problems and Hypotheses

This study sought to find if there is a significant difference in the mathematics performance of the left-brained and right-brained students enrolled in Math-laden courses at the Western Visayas College of Science and Technology.

Specifically, this study sought to answer the following questions:

1. What is the dominant brain hemisphere among the participants as a whole and when they are grouped according to their program in phases I, II, III and IV?
2. What is the level of mathematics performance of the participants as a whole and when they are grouped according to their hemispheric dominance and program in phases I, II, III and IV?
3. Is there a significant difference in the mathematics performance of the participants when they are grouped according to their hemispheric brain dominance, program, and phase of the study?
4. Is there a significant difference in the hemispheric brain dominance of the participants when they are grouped according to phase of the study?

Based on the foregoing problems, the following hypotheses are advanced:

1. There is no significant difference in the mathematics performance of the participants when they are grouped according to their hemispheric brain dominance, program, and phase of the study.
2. There is no significant difference in the hemispheric brain dominance of the participants when they are grouped according to phase of the study.



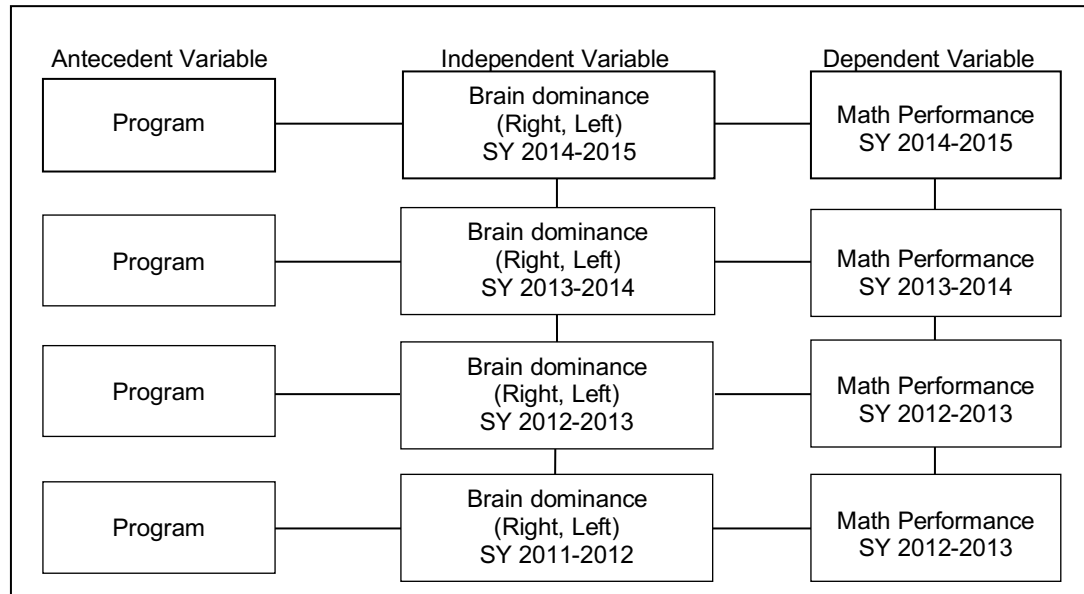


Figure 1 shows the research paradigm of the relationship among variables.

## Methodology

This descriptive study aimed to determine the level of mathematics performance among participants when they were grouped according to hemispheric brain dominance and program. It also aimed to compare the results of each phase of the study from phase I to IV.

### The Participants

In phase I, the participants of the study were 172 college students. These were later reduced to 120 in phase II and to 88 in phases III and IV. The participants were fourth year college students from the Bachelor of Science in Mathematics (BSM), Bachelor of Science in Education major in Mathematics (BSEd), Bachelor of Science in Electrical Engineering (BSEE), Bachelor of Science in Electronic and Communication Engineering (BSECE), and Bachelor of Science in Mechanical Engineering major in Automotive Engineering (BSMEAE) of Western Visayas College of Science and Technology (WVCST) in Iloilo City during the school year 2014-2015.

Table 1 details the distribution of the participants based on hemispheric dominance and program.

Table 1. *Distribution of Participants According to Hemispheric Dominance and Program*

| Category        | Phase I |     | Phase II |     | Phase III |     | Phase IV |     |
|-----------------|---------|-----|----------|-----|-----------|-----|----------|-----|
|                 | F       | %   | f        | %   | f         | %   | f        | %   |
| A. Entire Group | 172     | 100 | 120      | 100 | 88        | 100 | 85       | 100 |
| B. HD           |         |     |          |     |           |     |          |     |
| Left Brain      | 102     | 59  | 73       | 61  | 63        | 72  | 57       | 67  |
| Right Brain     | 70      | 41  | 47       | 39  | 25        | 28  | 28       | 33  |
| C. Program      |         |     |          |     |           |     |          |     |
| BSM             | 29      | 17  | 21       | 18  | 20        | 23  | 20       | 24  |
| BSEd            | 31      | 18  | 23       | 19  | 22        | 25  | 22       | 26  |
| BSEE            | 43      | 25  | 29       | 24  | 10        | 11  | 10       | 12  |
| BSECE           | 48      | 28  | 35       | 29  | 26        | 30  | 23       | 27  |
| BSMEAE          | 21      | 12  | 12       | 10  | 10        | 11  | 10       | 12  |



### *Data-gathering Instruments*

The same data-gathering instrument was used in phases I to IV which was the researcher-made 46-item Hemispheric Brain Dominance. The instrument was validated by two experts, a psychiatrist and a psychologist. The test-retest reliability (Pearson Product Moment correlation coefficient) was 0.913.

Each participant was asked to express his/her agreement/disagreement with each statement by answering “Yes” or “No”. Before the scoring was done, each statement was classified as either left-brain or right-brain statement. There were twenty-three (23) left-brain and twenty-three (23) right-brain statements. To identify the brain dominance of the participants, the score was determined.

The high scores on the Hemispheric Brain Dominance Test were associated with a left hemispheric mode while the low scores were associated with a right hemispheric mode.

The scores are interpreted as follows:

| Scale   | Description          |
|---------|----------------------|
| 24 – 46 | Left-Brain Dominant  |
| 0 – 23  | Right-Brain Dominant |

Mathematics Performance. The Mathematics performance was based on the average final grades of the participants in their Mathematics classes. Based on WVCST Memorandum No. 3/9/2007-14, the grades were interpreted as follows:

| Scale     | Description  |
|-----------|--------------|
| 1.0       | Excellent    |
| 1.1 – 1.5 | Outstanding  |
| 1.6 – 2.0 | Very Good    |
| 2.1 – 2.5 | Good         |
| 2.6 – 3.0 | Fair/Passing |
| 3.1 – 3.5 | Conditional  |
| 3.6 – 5.0 | Failed       |

The data were collected from the participants during the second semester of SY 2014 -2015. The participants were asked to complete the Hemispheric Brain Dominance instrument to determine their individual's brain hemisphericity. Their grades in mathematics were obtained from the Registrar's Office.

### **Results and Discussion**

Table 2 shows the number of the left brain and right brain dominant participants when they were grouped according to program. In phase I, as an entire group, there were 70 (40.7%) right brain dominant participants and 102 (59.3%) left brain dominant participants. In phase II, as an entire group, there were 47 (39.2%) right brain dominant participants and 73 (60.8%) left brain dominant participants. In phase III, as an entire group, there were 25 (28.4%) right brain dominant participants and 63 (71.6%) left brain dominant participants. In phase IV, there were 28 (33.9%) right brain dominant participants and 57 (67.1%) left brain dominant participants. The dominant brain hemisphere among the participants in all phases of the study was the left brain. The result agrees with the findings of Alvaro (2006) which revealed that there were significantly more left-brained than the combined number of right-brained and confluent-brained college students.

When the participants were grouped according to program in phase I, the right brain dominant participants consisted of 7 BSM (4.1%), 7 BSEd (4.1%), 24 BSEE (14.0%), 24 BSECE (14.0%), and 8 BSMEAE (4.7%), while the left brain dominant participants consisted of 22 BSM (12.8%), 24 BSEd (14.0%), 19 BSEE (11.1%), 24 BSECE (14.0%), and 13 BSMEAE (7.6%). Hence, when the participants were grouped according to program, the dominant brain hemisphere was the left brain except for the BSECE where there was an equal number of left-brained and right-brained participants.

In phase II, the right brain dominant participants consisted of 7 BSM (5.8%), 5 BSEd (4.2%), 15 BSEE (12.5%), 16 BSECE (13.3%), and 4 BSMEAE (3.3%), while the left brain dominant participants consisted of 14 BSM (11.7%), 18 BSEd (15.0%), 14 BSEE (11.7%), 19 BSECE (15.8%), and 8 BSMEAE (6.7%). Hence, when the



participants were grouped according to program, the dominant brain hemisphere was the left brain. Only the BSEE participants were right-brain dominant.

In phase III, the right brain dominant participants consisted of 3 BSM (3.4%), 4 BSEd (4.6%), 3 BSEE (3.4%), 10 BSECE (11.4%), and 5 BSMEAE (5.7%), while the left brain dominant participants consisted of 17 BSM (19.3%), 18 BSEd (20.5%), 7 BSEE (8.0%), 16 BSECE (18.2%), and 5 BSMEAE (5.7%). Therefore, when the participants were grouped according to program, the dominant brain hemisphere was the left brain except for the BSMEAE where there was an equal number of left-brained and right-brained participants.

In phase IV, the right brain dominant participants consisted of 4 BSM (4.7%), 4 BSEd (4.7%), 6 BSEE (7.1%), 11 BSECE (12.9%), and 3 BSMEAE (3.5%), while the left brain dominant participants consisted of 16 BSM (18.8%), 18 BSEd (21.2%), 4 BSEE (4.7%), 12 BSECE (14.1%), and 7 BSMEAE (8.2%). Therefore, when the participants were grouped according to program, the dominant brain hemisphere was the left brain except for the BSEE where there was more of right-brained than left-brained participants.

*Table 2. Dominant Brain Hemisphere When the Participants Were Grouped According to Program*

| Category        | Phase I |      |      |      | Phase II |      |      |      | Phase III |      |      |      | Phase IV |      |      |      |
|-----------------|---------|------|------|------|----------|------|------|------|-----------|------|------|------|----------|------|------|------|
|                 | Right   |      | Left |      | Right    |      | Left |      | Right     |      | Left |      | Right    |      | Left |      |
|                 | f       | %    | f    | %    | f        | %    | f    | %    | f         | %    | f    | %    | f        | %    | f    | %    |
| A. Entire Group | 70      | 40.7 | 102  | 59.3 | 47       | 39.2 | 73   | 60.8 | 25        | 28.4 | 63   | 71.6 | 28       | 33.9 | 57   | 67.1 |
| B. Program      |         |      |      |      |          |      |      |      |           |      |      |      |          |      |      |      |
| BSM             | 7       | 4.1  | 22   | 12.8 | 7        | 5.8  | 14   | 11.7 | 3         | 3.4  | 17   | 19.3 | 4        | 4.7  | 16   | 18.8 |
| BSEd            | 7       | 4.1  | 24   | 14.0 | 5        | 4.2  | 18   | 15.0 | 4         | 4.6  | 18   | 20.5 | 4        | 4.7  | 18   | 21.2 |
| BSEE            | 24      | 14.0 | 19   | 11.1 | 15       | 12.5 | 14   | 11.7 | 3         | 3.4  | 7    | 8.0  | 6        | 7.1  | 4    | 4.7  |
| BSECE           | 24      | 14.0 | 24   | 14.0 | 16       | 13.3 | 19   | 15.8 | 10        | 11.4 | 16   | 18.2 | 11       | 12.9 | 12   | 14.1 |
| BSMEAE          | 8       | 4.7  | 13   | 7.6  | 4        | 3.3  | 8    | 6.7  | 5         | 5.7  | 5    | 5.7  | 3        | 3.5  | 7    | 8.2  |

#### Level of Mathematics Performance

The means and standard deviations are depicted in Table 3, in phases I to IV of the study, the level of mathematics performance of the participants when they were grouped according to hemispheric dominance and program.

In phase I, the participants as an entire group had “fair” mathematics performance of ( $M = 3.02$ ,  $SD = 0.84$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant participants had “conditional” mathematics performance of ( $M = 3.23$ ,  $SD = 0.72$ ) while those left brain dominant had “fair” mathematics performance of ( $M = 2.87$ ,  $SD = 0.89$ ). As to program, both the BSM and the BSEd participants had “good” mathematics performance of ( $M = 2.44$ ,  $SD = 0.87$ ) and ( $M = 2.30$ ,  $SD = 0.42$ ) respectively. The BSEE, BSECE, and BSMEAE participants had “conditional” mathematics performance of ( $M = 3.44$ ,  $SD = 0.70$ ), ( $M = 3.28$ ,  $SD = 0.76$ ), and ( $M = 3.39$ ,  $SD = 0.63$ ) respectively.

In phase II, the participants as an entire group had “fair” mathematics performance of ( $M = 2.65$ ,  $SD = 0.60$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant had “fair” mathematics performance of ( $M = 2.85$ ,  $SD = 0.59$ ) while the left brain dominant had “fair” mathematics performance of ( $M = 2.52$ ,  $SD = 0.57$ ). As to program, the BSM participants had “very good” mathematics performance of ( $M = 2.05$ ,  $SD = 0.37$ ) while the BSEd participants had “good” mathematics performance of ( $M = 2.36$ ,  $SD = 0.30$ ). The BSEE, BSECE, and BSMEAE participants had “fair” mathematics performance of ( $M = 2.90$ ,  $SD = 0.56$ ), ( $M = 2.97$ ,  $SD = 0.59$ ), and ( $M = 2.68$ ,  $SD = 0.43$ ) respectively.

In phase III, the participants as an entire group had “good” mathematics performance of ( $M = 2.38$ ,  $SD = 0.58$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant had “fair” mathematics performance of ( $M = 2.64$ ,  $SD = 0.76$ ) while the left brain dominant had “good” mathematics performance of ( $M = 2.27$ ,  $SD = 0.46$ ). As to program, the BSM had “very good” mathematics performance of ( $M = 1.99$ ,  $SD = 0.31$ ), while the BSEd and BSEE participants had “good” mathematics performance of ( $M = 2.13$ ,  $SD = 0.25$ ) and ( $M = 2.29$ ,  $SD = 0.64$ ) respectively. The BSECE participants had “fair” mathematics performance





of ( $M = 2.60$ ,  $SD = 0.43$ ) while the BSMEAE participants had “conditional” mathematics performance of ( $M = 3.20$ ,  $SD = 0.76$ ).

In phase IV, the participants as an entire group had “very good” mathematics performance of ( $M = 2.04$ ,  $SD = 0.52$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant had “good” mathematics performance of ( $M = 2.24$ ,  $SD = 0.71$ ) while the left brain dominant had “very good” mathematics performance of ( $M = 1.95$ ,  $SD = 0.38$ ). As to program, the BSM and the BSEd participants had “very good” mathematics performance of ( $M = 1.78$ ,  $SD = 0.30$ ) and ( $M = 1.76$ ,  $SD = 0.19$ ) respectively. The BSECE participants had “good” mathematics performance of ( $M = 2.30$ ,  $SD = 0.34$ ) while the BSEE participants had “fair” mathematics performance of ( $M = 2.60$ ,  $SD = 0.92$ ).

As an entire group, the participants had “fair” mathematics performance both in phases I and II while the participants in phase III had “good” mathematics performance and “very good” in phase IV. When the participants were grouped according to hemispheric dominance, the right-brain dominant participants in phase I had “conditional” mathematics performance. The participants in phase II and phase III had “fair” mathematics performance while the participants in phase IV had “good” mathematics performance. However, the left brain dominant participants in phase I had “fair” mathematics performance while in phases II and III, the participants had “good” mathematics performance and “very good” mathematics performance in phase IV.

Table 3. *Level of Mathematics Performance When the Participants Were Grouped According to Hemispheric Dominance and Program*

| Category        | Phase I |             |      | Phase II |             |      | Phase III |             |      | Phase IV        |             |      |
|-----------------|---------|-------------|------|----------|-------------|------|-----------|-------------|------|-----------------|-------------|------|
|                 | Mean    | Description | SD   | Mean     | Description | SD   | Mean      | Description | SD   | Mean            | Description | SD   |
| A. Entire Group | 3.02    | Fair        | 0.84 | 2.65     | Fair        | 0.60 | 2.38      | Good        | 0.58 | 2.04            | Very Good   | 0.52 |
| B. HD           |         |             |      |          |             |      |           |             |      |                 |             |      |
| Right           | 3.23    | Conditional | 0.72 | 2.85     | Fair        | 0.59 | 2.64      | Fair        | 0.76 | 2.24            | Good        | 0.71 |
| Left            | 2.87    | Fair        | 0.89 | 2.52     | Good        | 0.57 | 2.27      | Good        | 0.46 | 1.95            | Very Good   | 0.38 |
| C. Program      |         |             |      |          |             |      |           |             |      |                 |             |      |
| BSM             | 2.44    | Good        | 0.87 | 2.05     | Very Good   | 0.37 | 1.99      | Very Good   | 0.31 | 1.78            | Very Good   | 0.30 |
| BSEd            | 2.30    | Good        | 0.42 | 2.36     | Good        | 0.30 | 2.13      | Good        | 0.25 | 1.76            | Very Good   | 0.19 |
| BSEE            | 3.44    | Conditional | 0.70 | 2.90     | Fair        | 0.56 | 2.29      | Good        | 0.64 | 2.60            | Fair        | 0.92 |
| BSECE           | 3.28    | Conditional | 0.76 | 2.97     | Fair        | 0.59 | 2.60      | Fair        | 0.43 | 2.30            | Good        | 0.34 |
| BSMEAE          | 3.39    | Conditional | 0.63 | 2.68     | Fair        | 0.43 | 3.20      | Conditional | 0.76 | No Math Subject |             |      |

#### *Differences in the Level of Mathematics Performance*

Table 4 shows the results of the Mann-Whitney Test used to determine the significance of the difference in the level of mathematics performance of the participants. In all phases of the study (phases I, II, III and IV), significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric dominance of  $z(1) = -3.17$ ,  $p < .05$ ,  $z(1) = -3.001$ ,  $p < .05$ ,  $z(1) = -2.32$ ,  $p < .05$  and  $z(1) = -2.20$ ,  $p < .05$  respectively. The left brain dominant participants performed better in their mathematics subjects than the right brain dominant participants in the four phases of the study. The results revealed that brain hemispheric orientation of college students significantly explained their level of Mathematics performance (Alvaro, 2006). This showed that diversity in the brain hemispheric orientation of the college students significantly explained the level of mathematics performance.

Table 4. *Mann-Whitney Test of Mathematics Performance When the Participants Were Grouped According to their Hemispheric Dominance*

| Category | Phase I   |         |    |              | Phase II  |         |    |              | Phase III |         |    |              | Phase IV  |         |    |              |
|----------|-----------|---------|----|--------------|-----------|---------|----|--------------|-----------|---------|----|--------------|-----------|---------|----|--------------|
|          | Mean Rank | z-value | df | Sig 2-tailed | Mean Rank | z-value | df | Sig 2-tailed | Mean Rank | z-value | df | Sig 2-tailed | Mean Rank | z-value | df | Sig 2-tailed |
| HD       |           |         |    |              |           |         |    |              |           |         |    |              |           |         |    |              |
| Right    | 100.9     |         |    |              | 72.4      |         |    |              | 54.5      |         |    |              | 45.8      |         |    |              |
| Left     | 6.6       | -3.17   | 1  | .002*        | 52.9      | -3.001  | 1  | .003*        | 40.5      | -2.32   | 1  | .020*        | 34.1      | -2.20   | 1  | .028*        |

\*  $p < .05$ , significant

Table 5 shows the results of the Kruskal-Wallis test, a non-parametric test used to determine the significance of the difference in the level of mathematics performance of the participants when they were grouped according to





program. In phases I, II, III, and IV, significant differences existed in the level of mathematics performance when the participants were grouped according to program of  $z(4) = 67.64$ ,  $p < .05$ ,  $z(4) = 47.80$ ,  $p < .05$ , and  $z(4) = 41.39$ ,  $p < .05$ , respectively. The result of the present study supports the studies of Go & Camariosa, (2013); Kolb, (1979); and McCarthy, (1996) which suggested that brain hemisphericity is associated with different academic majors. However, it contradicts the study of Humera (2013) that no significant difference was found between mathematics achievement of students with respect to different hemispheric dominant style of learning and thinking.

Table 5. *Kruskal-Wallis Test of Mathematics Performance When the Participants Were Grouped According to Program*

| A. Category | Phase I   |                |    |              | Phase II  |                |    |              | Phase III |                |    |              | Phase IV        |                |    |              |
|-------------|-----------|----------------|----|--------------|-----------|----------------|----|--------------|-----------|----------------|----|--------------|-----------------|----------------|----|--------------|
|             | Mean Rank | X <sup>2</sup> | df | Sig 2-tailed | Mean Rank | X <sup>2</sup> | df | Sig 2-tailed | Mean Rank | X <sup>2</sup> | df | Sig 2-tailed | Mean Rank       | X <sup>2</sup> | df | Sig 2-tailed |
| B.          |           |                |    |              |           |                |    |              |           |                |    |              |                 |                |    |              |
| Program     |           |                |    |              |           |                |    |              |           |                |    |              |                 |                |    |              |
| BSM         | 52.5      |                |    |              | 24.1      |                |    |              | 24.4      |                |    |              | 26.8            |                |    |              |
| BSEd        | 39.3      |                |    |              | 40.4      |                |    |              | 31.4      |                |    |              | 53.7            |                |    |              |
| BSEE        | 116.3     | 67.64          | 4  | .00*         | 77.4      | 47.80          | 4  | .00*         | 45.9      | 41.39          | 4  | .00*         | 56.9            | 34.88          | 3  | .00*         |
| BSECE       | 98.2      |                |    |              | 78.4      |                |    |              | 58.2      |                |    |              | 23.2            |                |    |              |
| BSMEAE      | 115.6     |                |    |              | 69.5      |                |    |              | 76.5      |                |    |              | No Math Subject |                |    |              |

\*  $p < .05$ , significant

Table 6 shows the Scheffe Post hoc test results that BSM and BSEd participants significantly performed better in math than the BSECE and BSEE participants. However, BSEd participants had comparable performance in math with BSM participants. The BSECE and the BSEE math performance were not significant. The results appear to confirm that students majoring in areas such as business, engineering and science show a left-hemispheric dominance (Bakan, 1969; Dabbs, 1980; Kolb, 1979; Lavach, 1991; McCarthy, 1996; Rowe, Waters, Thompson, & Hanson, 1992; Witkin et al., 1977 in Saleh (2001).

Table 6. *Post Hoc (Scheffe) Test of Mathematics Performance When the Participants Were Grouped According to Program*

| Category |       | Mean Difference | Std Error | Significance |
|----------|-------|-----------------|-----------|--------------|
| BSM      | BSECE | -0.5211(*)      | 0.12855   | 0.002*       |
|          | BSEE  | -0.8220(*)      | 0.16322   | 0.000*       |
|          | BSED  | 0.0139          | 0.13020   | 1.000        |
| BSECE    | BSEE  | -0.3009         | 0.15963   | 0.322        |
|          | BSED  | 0.5350(*)       | 0.12568   | 0.001*       |
| BSEE     | BSED  | 0.8359(*)       | 0.16073   | 0.000*       |

\*The mean difference is significant at the .05 level.

Table 7 shows the results of the Kruskal-Wallis test, a non-parametric test used to determine the significance of the difference in the level of mathematics performance of the participants when they were grouped according to each phase of the study. There is a significant difference in the level of mathematics performance of the participants when they were grouped according to each phase of the study,  $X^2(3) = 95.211$ ,  $p = .000$ .

Table 7. *Kruskal-Wallis Test of the Mathematics Performance of the Participants in Phases I, II, III and IV*

| Phase              | Mean Rank | Chi-Square | df | Significance 2-tailed |
|--------------------|-----------|------------|----|-----------------------|
| I (SY 2011-2012)   | 282.79    |            |    |                       |
| II (SY 2012-2013)  | 247.91    | 95.211     | 3  | 0.000*                |
| III (SY 2013-2014) | 189.86    |            |    |                       |
| IV (SY 2014-2015)  | 115.24    |            |    |                       |

$p < .05$ , significant

Table 8 shows the Scheffe Post hoc test results that mathematics performance of the participants in phase I significantly differed in their mathematics performance in phases II, III and IV. In phase II, they significantly differed in their mathematics performance in phases III and IV. Similarly, their mathematics performance in phase III significantly differed in phase IV. This implies that the level of mathematics performance of the participants had improved from phases I to IV.



Table 8. *Post Hoc (Scheffe) Test of the Mathematics Performance of the Participants When Grouped According to Phases of the Study*

| Category  | Mean Difference       | Std Error | Significance |
|-----------|-----------------------|-----------|--------------|
| Phase I   | Phase II<br>.2644(*)  | .07941    | .012*        |
|           | Phase III<br>.5522(*) | .08750    | .000*        |
|           | Phase IV<br>.8799(*)  | .09238    | .000*        |
| Phase II  | Phase III<br>.2878(*) | .09369    | .025*        |
|           | Phase IV<br>.6155(*)  | .09827    | .000*        |
| Phase III | Phase IV<br>.3277(*)  | .10491    | .022*        |

\* The mean difference is significant at the .05 level.

Table 9 presents the results of the Kruskal-Wallis Test, a non-parametric test used to determine the significance of the difference in the hemispheric brain dominance of the participants when they were grouped according to the phase of the study. There is no significant difference in the hemispheric brain dominance of the participants when they were grouped according to the phase of the study,  $X^2(3) = 5.214$ ,  $p = 0.157$ . This implies that the slight changes in the hemispheric brain dominance of the participants for the last four years did not significantly differ. The result supports the study of Nielsen et al. which states that lateralized brain networks appear to show only weak changes from childhood into early adulthood.

Table 9. *Kruskal-Wallis Test of the Hemispheric Dominance of the Participants in Phases I, II, III, and IV*

| Phase             | Mean Rank | Chi-Square | df | Significance<br>2-tailed |
|-------------------|-----------|------------|----|--------------------------|
| I(SY 2011-2012)   | 221.17    | 5.214      | 3  | 0.157                    |
| II(SY 2012-2013)  | 229.38    |            |    |                          |
| III(SY 2013-2014) | 252.45    |            |    |                          |
| IV(SY 2014-2015)  | 241.91    |            |    |                          |

$p > .05$ , not significant

## Conclusions

1. As an entire group, the left brain was the dominant brain hemisphere among the participants from phases I to IV. In phase I, when the participants were grouped according to program, BSM, BSEd and BSMEAE were left brain dominant while the BSEE participants were right brain dominant. The BSECE had equal number of left-brained and right-brained participants. In phase II, the dominant brain hemisphere was the left brain except for the BSEE where the dominant brain hemisphere was the right brain. In phase III, the dominant brain hemisphere was the left brain except for the BSMEAE where there was an equal number of left-brained and right-brained participants. In phase IV all participants from the different programs were left-brain dominant except for the BSEE participants who were dominated by the right brain. The results of the present study agree with the findings of Fernandez (2011) that whether taken as an entire group or classified according to gender and I.Q., the dominant brain hemisphericity of the students is the left brain.

2. As an entire group, phases I and II participants had "fair" mathematics performance; phase III had "good" mathematics performance; and phase IV had "very good" mathematics performance. When the participants who were right-brain dominant were grouped according to hemispheric dominance, phase I had "conditional" mathematics performance; phases II and III had "fair" mathematics performance; and phase IV had "good" mathematics performance. Those who were left-brain dominant had "fair" mathematics performance in phase I, "good" mathematics performance in phases II and III, and "very good" mathematics performance in phase IV.

3. From phase I to phase IV of the study, significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric brain dominance. The left-brain dominant participants performed better in their mathematics performance than the right-brain dominant participants. There was also a significant decrease in the enrolment of participants who were "right-brained" for the reason that they shifted to other courses or transferred to other schools.

4. In phases I, II and III, significant differences existed in the level of mathematics performance when the participants were grouped according to their program.



5. There is no significant difference in the hemispheric brain dominance of the participants when they were grouped according to the four phases of the study. This implies that the slight changes in the hemispheric brain dominance of the participants were not significant in the last four years.

### **Recommendations**

It is recommended that the findings should be utilized by the administrators and guidance counselors of WVCST or other colleges and universities to help students gain insights into their career choices. These insights, if acted upon, can help decrease the number of students dropping out of college or changing courses because of the lack of fitness between their cognitive styles and the requirements of certain fields.

Follow up studies using the results as a baseline data may be utilized to establish strong validity of the relationship of hemispheric dominance to mathematics performance and other subject areas, and to determine if there will be a shift in students' brain dominance. It is highly recommended to Administrators and Guidance Counselors to assess the brain dominance of the incoming freshmen and give priority to left-brained students for Math-laden courses. More researches in different subjects and courses and backgrounds that will add support to this study should be conducted.

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## The Effect Of 7e Learning Cycle Approach On Students' Conception On Changes In Matter, Energy And Time

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### Abstract

The purpose of this study is to determine the effect of 7E Learning Cycle Approach on students' level of conception on Changes in Matter, Energy and Time. Specifically, it seeks to answer the following questions: (1) What is the students' level of conception on Changes in Matter, Energy and Time before and after the class is taught using the 7E learning cycle approach? (2) Are there differences on the students' level of conception in each subtopic before and after using the 7E learning cycle approach? (3) Are there differences on the students' overall level of conception before and after using the 7E Learning cycle approach? (4) What is the students' perception on the use of the 7E Learning cycle approach in Changes in Matter, Energy and Time? The experiment lasted for three weeks and involved one intact class of 48 students enrolled in High School Chemistry class during the School Year 2010 – 2011. Before the implementation of 7E learning cycle approach a 15-item researcher made two-tier test was administered. The results of the pretest and posttest were used in determining the students' level of conception on Changes in Matter, Energy and Time. A perception questionnaire was given to 10 randomly selected students. The subtopics included in the study were: Law of Definite Composition, Information from Balanced Equations, Types of Reactions, Exothermic and Endothermic Reactions, and Factors Affecting the Rates of Chemical Reaction. To determine how well the students understood the topic for the day, a two- tier concept test for evaluation was given to the class every session as their output. Students got high scores which imply that they understood the lesson after exposing them to 7E learning cycle approach. According to them they understood the lesson easily using the said approach. They enjoyed learning and promoted the spirit of cooperation in doing the activities which are based on the 7E learning cycle. Students who have difficulty in understanding the Chemistry concepts realized that they have the capacity to understand the lesson. The answers in the two-tier concept test in the pretest and posttest were then evaluated to get the students' level of conception per subtopic. The level of conception was determined by computing the weighted means for each subtopic. In addition to that, t-test for correlated means was also applied in determining the differences of the students' level of conception in each subtopic before and after the 7E learning cycle approach. The overall level of conception was also determined by using the grand weighted mean of pretest and posttest. The  $t$  –test score was also used in determining the overall level of students' conception before and after using the 7E learning cycle approach. Result of the study revealed that the 7E learning cycle approach improved the students' conception on Changes in Matter, Energy and Time. The students perceived that the approach is enjoyable, helped them develop positive attitude towards Chemistry, understand the concept better and deeper, and give a clear understanding on the concepts on Changes in Matter, Energy and Time.

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## Introduction

Chemistry is a world filled with interesting phenomenon, appealing experimental activities, and fruitful knowledge for understanding the natural and manufactured worlds. However, it is so complex. Not only do students need to understand the symbols, terminologies, and theories used in learning chemical concepts, but they also need to transform instructional language or materials that teachers use in the chemistry classroom into meaningful representations. Learning chemistry can become challenging work for students of different ages. Although many studies have been conducted in the area of misconceptions (otherwise known as “alternative conceptions” or “student conceptions”) in chemistry, few studies exist that systematically collected students’ conceptions of their understanding of chemical concepts.

Numerous studies have repeatedly shown that students come to their chemistry class with alternative conceptions already formed as a result of their interactions with the world (Watson & Boo, 2001). These conceptions were normally acquired in their learning environment such as in class discussion and in textbooks. Chiu, et al. (2002) reported that students generate understanding via the interaction between their existing knowledge structure and new information that might have representations of concepts that are different from their original ones. As a result, the bridge between existing and new conception creates difficulties in learning science, specifically Chemistry. Skelly and Hall (1993) defined a misconception as a mental representation of a concept, which does not correspond to currently held scientific theory. They divided misconceptions into two categories: experiential and instructional. The experiential misconceptions are also referred to as alternative, intuitive or native conceptions. In experiential misconceptions a concept has been understood, at least to some extent, through everyday experience and interaction with the phenomenon involved. Examples of experiential misconceptions occur in connection with phenomena such as motion, energy, and gravity. Misconceptions pertaining to some chemical phenomena, however are fundamentally different because the existence of atoms and molecules are not directly within the realm of everyday experience. Misconceptions pertaining to these more abstract phenomena result from some instructional experience, within or outside of the classroom, including independent study.

Science educators and cognitive researchers have emphasized that science education improvement should focus on fundamentally important knowledge domains and that effective instructional provisions, including the strategies necessary for problem solution, vary with scientific domain.

However, school curricula tend to motivate students to quickly memorize and rapidly forget the scientific concepts, principles and findings. Hence the practical and pedagogical underpinnings of conceptual understanding in science hinge on the advances in research on learning and instruction which characterizes the learner as (a) actively constructing a view of the natural world, (b) coming to class with isolated conceptions rather than integrated ideas, (c) benefiting from the robust model of scientific phenomena, and (d) capable of learning self – monitoring skills (Linn & Songer, 1991).

In order to attain quality education, teaching strategies in science and mathematics had been tried and proven to be effective in current classroom strategies. Examples are collaborative learning, problem based learning, inquiry –based approach, and 7E learning cycle approach.

According to conceptual change theory new learning is limited by what learner knows. New concepts are defined by a network of connections made among them and numerous other concepts from which the learner has already established meanings (Roach & Wandersee, 1995). As a result, instructional changes mandate significant change both in what is assessed in chemistry and how that assessment is done. New question formats, new assessment delivery systems, and new assessment objectives are supplementing those that have been used and valuing the past. The result is that chemistry instructors can do a better job than ever in matching assessment with curricula (Eubanks, 2005). Due to misconceptions that arise in the field of chemistry education, the 7E Learning cycle approach was developed. One of the teaching strategies in making learning more meaningful and effect conceptual understanding among chemistry students is the adaptation of 7E Learning cycle. The 7E Learning cycle is the expansion of the 5E Learning Cycle. The proposed 7E model expands the engage element into two components – elicit and engage. Similarly, the 7E model expands the two stages of elaborate and evaluate into three components – elaborate, evaluate and extend. The said learning cycle will help the instructors





to give emphasis on the crucial elements of learning. The goal of the 7E learning model is to emphasize the increasing importance of eliciting prior understandings and the extending, or transfer of concepts. With this new model, teachers should no longer overlook these essential requirements for student learning. This research, therefore, attempted to examine the students' conception and perceptions on Changes in Matter, Energy and Time using the 7E Learning cycle approach.

### **Statement of the Problem**

The purpose of this study is to determine the effect of 7E learning cycle approach on students' conception on Change, Energy and Time. It also assessed the students' perception on the teaching method used. Specifically, it seeks to answer the following questions:

1. What is the students' level of conception on Changes in Matter, Energy and Time before and after the class is taught using the 7E learning cycle approach?
2. Are there differences on the students' level of conception in each subtopic before and after using the 7E learning cycle approach?
3. Are there differences on the students' overall level of conception before and after using the 7E Learning cycle approach?
4. What is the students' perception on the use of the 7E Learning cycle approach in Changes in Matter, Energy and Time?

### **Methodology**

This chapter presents the research design, the sample of the study, the research instruments, the data gathering procedure and the data analysis employed with the collected data.

#### *Research Design*

The study employed both qualitative and quantitative methods of research. It utilized a pretest – post test single group pre – experimental design to determine the effect of the 7E learning cycle approach on the students' level of conception on Change, Energy and Time.

The design employed is shown below:

O1                      X                      O2

Where:

O1 – pretest

O2 – posttest

X –treatment

#### *The Sample*

The study was conducted during the Fourth Grading Period of school year 2010– 2011 at the Kalayaan National High School in Pasay City. The sample consists of 48 third year high school students taking High School Chemistry. The sample was chosen by convenience sampling since the schedule of this intact class is convenient to the observation time of the selected observers. The topic chosen in this study was based on the Learning Competencies in Science and Technology III (Chemistry) given by the Department of Education since students are taking up High School Chemistry. The lecture was done in their first period in which they had maximized the activities performed on the discussion on Changes in Matter, Energy and Time using the 7E learning cycle - based lessons.

#### *Research Instruments*

This study used four instruments which are (1) 7E learning cycle - based lessons on the topics on Change, Energy and Time, (2) Chemistry Conceptual Understanding Test, (3) Questionnaire on the students' perception on the use of 7E Learning Cycle Approach and (4) Observation guide.

#### *7E Learning Cycle - Based Lessons*

The study used the 7E Learning Cycle Approach in developing the lesson plans which covered topics about Changes in Matter, Energy and Time. The learning cycle has the following stages elicit, engage, explore, explain, elaborate, evaluate, and extend. The format of the lesson plan was adapted from the 7E by Arthur Eisenkraft (2003) entitled Seatbelt lesson using the 7E model. The format consists of the following content; eliciting prior understandings wherein the teacher asked their prior understanding in a given subject matter, engage component wherein the goal was to continue to excite the interest of the students, explore phase provided an opportunity for the students to observe, record data, identifying variables, experimentation, and organize their





findings, explain phase wherein the teacher guided the students toward coherent and consistent generalizations, elaborate phase provided an opportunity for students to apply their knowledge to new domains, evaluate phase included both formative and summative evaluations of student learning, and the extend phase wherein the students practiced the transfer of learning. The researcher prepared five 7E Learning Cycle - based lesson plans which cover the topics, Law of Definite Composition, Balancing Equation, Types of Chemical Reaction, Exothermic and Endothermic Reactions and Factors Affecting the Rate of Chemical Reaction. It was content validated by three experts. There were minor revisions made to come up with the final draft.

#### *Chemistry Conceptual Understanding Test*

The researcher-made two tier concept test includes topics on Changes in Matter, Energy and Time. The students were given four possible answers to choose from on the first tier. Once they have chosen their answer they will explain why they have selected that particular choice by choosing four possible explanations on the second tier.

An initial of 15-item two tier concept test was drafted based on the Table of Specifications to aid the teacher in determining the number of questions per subtopic and the type of questions covering the three cognitive domains; remembering, understanding, and applying. This was based on the Learning Competencies given by the Department of Education in Science and Technology III (Chemistry). The following topics were included: Law of Definite Composition, Information from Balanced Equations, Types of Reaction, Exothermic and Endothermic Reactions, and Factors Affecting the Rate of Chemical Reaction. The test consists of the first tier, multiple choice and the second tier, multiple choice, reason for choosing the answer in the first tier. This was content validated by three experts in the field of Chemistry. Minor revisions were made such as addition of illustrations and trimming of the questions as well as the stem of the choices in each item. The test was administered to 48 students taking Physics who took Chemistry last School Year 2009-2010. They were not included in the study but comparable to the target group of students. The test items were analyzed, the indices of difficulty and discrimination were calculated. Item analysis was done to serve as basis for items to be accepted, revised and rejected (Appendix A). All of the questions were accepted which covers the topic on Changes in Matter, Energy and Time. The test - retest reliability of the CCUT is calculated using Pearson  $r$  and has a computed value of 0.50 (Appendix B) the test is reliable enough to be used as instrument in this study.

The final draft consists of 15 items (Appendix C). The test was used for the pretest and the posttest to determine the level of conception of the students on Changes in Matter, Energy and Time.

#### *Scoring Criteria and Scoring Guide for the Multiple –Choice Two Tier Concept Test*

The scoring guide includes the numerical score equivalent to the level of conception and the criteria for scoring tiers 1 and 2. The scoring criteria for classifying students' level of conception (Table 1) include the interval, the numerical score and level of conception, and the criteria for scoring.

To get the score of each student's level of conception for each item in the pretest and the posttest, a scoring guide was used (Table 2) which was adapted from the study of Camento (2009). The scoring guide was composed of answers in tier 1 and tier 2 portions of the test. For each item, a student may get a score of 4 wherein he/she gets a correct answer in both tier 1 and tier 2, a score of 3 wherein he/she gets a correct answer in tier 1 and partially correct explanation in tier 2, a score of 2 wherein he/she gets a correct answer in tier 1 and wrong explanation in tier 2, a score of 1 wherein he/she gets a wrong answer in both tier 1 and tier 2, or a student may get a lowest score of 0 if he/she did not answer both tier 1 and tier 2. The scoring criteria are a categorization scheme to describe the students' level of conception based on the students' responses in an open ended concept test (Table 1). The levels of conception were classified into five categories namely Sound Understanding, Partial Understanding with Specific Misconception, Specific Misconception, and No Understanding.

### **Results And Discussion**

The data presentation follows the same sequential order of the problems as stated in Chapter 1 and interpretations of findings are accompanied in each question. Furthermore, the presentation of the data is in tabular form with the analysis of the specific questions.



*Students' Conception on Changes in Matter, Energy and Time*

Students' conception on Changes in Matter, energy and Time was determined through a concept test administered before and after the use of 7E Learning Cycle Approach. To further support the result of the concept test, a perception questionnaire was given to the students.

*Problem 1: What is the students' level of conception on Changes in Matter, Energy and Time before and after the class is taught using the 7E learning cycle approach?*

Table 1 specifically answers the students' level of conception on Changes in Matter, Energy and Time.

Table 1. *Students Level of Conception in Each Subtopic Before and After the 7E Learning Cycle Approach*

| Topics                                                                   | Item | Pretest Weighted Mean | Level of Conception in Pretest | Posttest Weighted Mean | Level of Conception Posttest |
|--------------------------------------------------------------------------|------|-----------------------|--------------------------------|------------------------|------------------------------|
| 1. Application of phase/chemical change used at home                     | 1    | 1.75                  | PM                             | 4.0                    | SU                           |
| 2. Evaluate evidence of chemical change                                  | 2    | 1.77                  | PM                             | 3.73                   | SU                           |
| 3. Explain the Law of Conservation of Mass                               | 3    | 1.67                  | PM                             | 3.83                   | SU                           |
| 4. Explain the Law of Definite Composition                               | 4    | 1.29                  | SM                             | 3.77                   | SU                           |
| 5. Derive the molecular formula given the molecular mass of the compound | 5    | 1.63                  | PM                             | 3.77                   | SU                           |
| 6. Determine the percentage composition of a compound                    | 6    | 1.60                  | PM                             | 3.83                   | SU                           |
| 7. Explain the information from balanced equations                       | 7    | 1.79                  | PM                             | 3.85                   | SU                           |
| 8. Classify the type of reaction based on the chemical equation          | 9    | 1.29                  | SM                             | 3.77                   | SU                           |
| 9. Describe how entropy and enthalpy affect the spontaneity of reaction  | 8    | 1.40                  | SM                             | 3.94                   | SU                           |
|                                                                          | 10   | 1.33                  | SM                             | 3.94                   | SU                           |
|                                                                          | 11   | 1.45                  | SM                             | 4.00                   | SU                           |
| 10. Name and explain the factors affecting the rate of chemical reaction | 12   | 1.42                  | SM                             | 3.97                   | SU                           |
|                                                                          | 13   | 1.44                  | SM                             | 3.95                   | SU                           |
|                                                                          | 14   | 1.13                  | SM                             | 3.94                   | SU                           |
|                                                                          | 15   | 1.63                  | SM                             | 3.97                   | SU                           |
| Average Weighted Mean                                                    |      | 1.40                  | SM                             | 3.96                   | SU                           |
| Grand Weighted Mean                                                      |      | 1.56                  | PM                             | 3.86                   | SU                           |

Legend: PM – Partial Understanding with Specific Misconception

SM – Specific Misconception

SU – Sound Understanding

*Problem 3: Are there differences on the students' overall level of conception before and after using the 7E Learning cycle approach?*

To analyze the difference on the students' overall level of conception before and after using the 7E learning cycle approach the t- test for correlated means was used and is presented in Table 2.



Table 2. *Over-all Level of Conception on Changes in Matter, Energy and Time*

| Test     | Grand Weighted Mean | t value | p value | Remarks     |
|----------|---------------------|---------|---------|-------------|
| Pretest  | 1.5660              | 31.856  | .000    | Significant |
| Posttest | 3.8570              |         |         |             |

### Conclusions

Based on the results of the study, the following conclusions were derived:

1. The use of 7E Learning Cycle Approach as a teaching strategy improved students' level of conception on Changes in Matter, Energy and Time.
2. There are significant differences between the students' level of conception before and after using the 7E learning cycle approach. The students after having been exposed to the 7E Learning Cycle Approach had significantly higher test scores in each subtopic in the posttest as compared to the pretest. This implies that there is an improvement of conception among the students when the 7E Learning Cycle Approach was applied in the lesson proper.
3. There are significant differences on the students' overall level of conception before and after using the 7E learning cycle approach. This indicates that students after having been exposed to the 7E learning cycle approach had significantly higher test scores in the posttest compared to the pretest.
4. The students perceived the use of 7E Learning Cycle Approach as enjoyable, helped them develop positive attitude towards Chemistry, understand the concept better and deeper, and gain a clear understanding on the concept on Changes in Matter, Energy and Time.

### Recommendations

Based on the findings and the conclusions drawn, the following are hereby recommended:

1. Chemistry teachers are encouraged to use the 7E learning cycle approach to enhance the students' conception on Changes in Matter, Energy and Time.
2. Further researches similar to present study may be conducted in other topic as well as in other areas of discipline to confirm its effectiveness and applicability both to teachers and students.
3. The instructional materials developed in this study may be used in other studies concerning teaching approach.
4. School administrator may be encouraged to plan for future trainings and seminars of using the 7E Learning cycle approach.

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## The BSCA Graduates' Level Of Satisfaction

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### Abstract

The research study aimed to trace the BSCA graduates of JBLFMU-Molo and know their level of satisfaction. The descriptive-survey research design was employed in the study. The participants were the 64 conveniently selected BSCA graduates in the years 2009, 2010, 2011, 2012 and 2013. The data used were responses from the graduates with the use of the alumni tracer questionnaire. Descriptive statistics used were mean, frequency count and content analysis. Inferential statistics included *t-test* for independent samples and One-Way ANOVA set at .05 alpha. Results revealed that the graduates had a “high” employment rate. The level of satisfaction of the graduates was also found to be “moderate”. When classified according employment status, broker licensure status, and year graduated, there was no significant difference existed among their level of satisfaction.

Keywords: BSCA, Alumni, Satisfaction, Level

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## **Introduction**

In this fast-changing and competitive world, a graduate must be equipped of the necessary knowledge and skills in order to be successful in his chosen career and eventually, achieve personal and professional growth and development to reach his goals in life. However, if he lacks the qualities of an employable graduate, he may not be able to pursue his career or even land a job.

According to McCoy (1991), employability skills are those required not only to gain employment but also to progress within the enterprise in order to achieve one's utmost potential and to successfully contribute to enterprises' strategic directions. Moreover, Yorke and Knight (2006) defined employability as the concept relating to the ability of graduates to overcome job related challenges and to gain employment.

In addition, in a graduate tracer study conducted by Karenina P. Depamaylo (2013), a tracer study can help gain feedback from graduates which will serve as bases for decision making for continuous development. On the same study she cited that graduate surveys are popular for "analysis of the relationship between higher education and work". They provide quantitative structural data on employment and career, the character of work and related competencies, and information on the professional orientation and experiences of their graduates (Schomburg, 2003, in Espanola 2011)

JBLFMU-Molo is the pioneer school to offer Customs Administration program in Iloilo in 1986. BS Customs Administration is a four-year college degree course for individuals who wish to pursue a career in customs brokerage or in the field of transportation and supply chain management. The program is designed to produce customs brokers, freight forwarders, logistic managers, export-import managers and government customs officers and employees (JBLFMU-Molo, 2009).

Thus, this study aimed to trace the BSCA graduates from 2009 to 2013 and find out their level of satisfaction. The researchers find it necessary in order to keep track of the graduates' profile, employment status and their level of satisfaction towards the curriculum they had been.

## **Statement of the Problem**

This study aimed to trace the BSCA graduates of JBLFMU-Molo from academic years 2009-2010 to 2012-2013. Specifically, it sought answers to the following questions.

1. What is the level of satisfaction of the graduates towards their curriculum and its contribution to their present employment?
2. Is there a significant difference between the level of satisfaction among the BSCA graduates in terms of employment status, broker licensure status and year graduated?
3. What are the suggestions of the graduates to their Unit Alma Mater for the improvement of the quality of its graduates?
4. What are the suggestions of the graduates to their Unit Alma Mater for the improvement of the student and alumni services?
5. What are the other suggestions from the graduates?

## **Hypothesis**

1. There is no significant difference between the level of satisfaction among the BSCA graduates in terms of employment status, broker licensure status and year graduated.

## **Methodology**

The main objective of the study was to trace and to determine the level of satisfaction of the BSCA graduates of JBLFMU-Molo in the years 2009, 2010, 2011, 2012 and 2013. The survey method with the help of the questionnaire with corresponding and appropriate instructions was used to gather all the data from the selected participants of the study.



## The Participants

The participants of this study were the conveniently selected BSCA graduates of JBLFMU-Molo in the years 2009, 2010, 2011, 2012, and 2013 with a total of 64 graduates regardless of sex. The participants were given questionnaires which were sent through email and facebook.

Table 1 describes the data of the BSCA graduates' employment status and broker status. When taken as an entire group, 60 out of 64 or 94% were employed while 4 out of 64 or 6% were unemployed. When classified according to broker licensure status, 33 out of 64 or 52% are brokers while 31 out of 64 or 48% are non-brokers.

Table 1. *Employability Status and Broker Licensure Status of BSCA Graduate*

|                         | f  | %   |
|-------------------------|----|-----|
| Entire group            | 64 | 100 |
| Employment Status       |    |     |
| Employed                | 60 | 94  |
| Unemployed              | 4  | 6   |
| Broker Licensure Status |    |     |
| Broker                  | 33 | 52  |
| Non-broker              | 31 | 48  |

## Materials and Instrumentation

Necessary data in this research were collected through the use of the official alumni tracer questionnaire of JBLFMU-Molo. The level of satisfaction of the graduates with regards to the curriculum and its contribution to their present employment was described using the following scale:

| Rating       | Description |
|--------------|-------------|
| 1.00 – 3.33  | Low         |
| 3.34 – 6.65  | Moderate    |
| 6.66 – 10.00 | High        |

## Data Collection Procedure

The researchers used the convenience sampling method to obtain the 64 participants for the study. There were 9 participants from 2009, 11 from 2010, 13 from 2011, 12 from 2012 and 19 from 2013.

The researchers asked permission from the Dean of the College of Business, in gathering the data. Upon approval, the copies of the research instrument were distributed to the participants to gather the data needed.

The questionnaires were sent through the participant's emails and facebook accounts especially to those who were difficult to contact. The participants' responses were sent back through emails and facebook accounts of the researchers. Other participants who were working in Iloilo were given printed copies of the questionnaires to fill up. Furthermore, the researchers made an electronic questionnaire through google form that was linked on facebook, and their responses were forwarded to the researchers' database in the google drive. After the data were gathered, appropriate statistical tools were used by the researchers in order to determine the results.

## Data Analysis Procedure

The data gathered were subjected to appropriate descriptive statistics such as the mean, frequency count, content analysis, t-test and ANOVA.

The mean was used to determine the level of satisfaction of the graduates towards the curriculum provided by the academe. The frequency count was also employed in this study in order to determine the number of graduates who responded or answered the questionnaire which served as bases in assessing their profiles. The content analysis was employed to validate and analyze the graduates' suggestions for the improvement of curriculum and trainings of the academe.





The t-test for independent samples was used to determine the level of satisfaction when classified whether broker or non-broker. The one-way ANOVA was used to determine the difference in the level of satisfaction of the BSCA graduates towards their curriculum when classified whether employed or unemployed, broker or non-broker and year graduated.

## Results and Discussion

Table 2 describes the level of satisfaction of the participants towards the curriculum. When classified according to employment, both employed (M = 6.55, SD = 1.50), and unemployed (M = 6.55, SD = 1.68) graduates have a “moderate” level of satisfaction.

When classified according to broker licensure status, graduates with license (M = 6.62, SD = 1.70) and graduates without license (M = 6.48, SD = 1.33), had the same “moderate” level of satisfaction.

When classified according to year graduated, graduates of 2009, 2010, 2012 and 2013 had the same “moderate” level of satisfaction with the mean and standard deviation as follows: 2009 (M = 6.47, SD = 2.42); 2010 (M = 6.53, SD = 1.21); 2012 (M = 6.38, SD = 1.08) and 2013 (M = 6.60, SD = 1.50). On the other hand, graduates of 2011 had “high” level of satisfaction (M = 6.72, SD = 1.50).

Table 2. *Level of Satisfaction Among BSCA Graduates Towards the Curriculum*

| Category                | Mean | Description | SD   |
|-------------------------|------|-------------|------|
| Entire group            | 6.55 | Moderate    |      |
| Employment Status       |      |             |      |
| Employed                | 6.55 | Moderate    | 1.50 |
| Unemployed              | 6.55 | Moderate    | 1.70 |
| Broker Licensure Status |      |             |      |
| With License            | 6.62 | Moderate    | 1.66 |
| Without License         | 6.48 | Moderate    | 1.33 |
| Year Graduated          |      |             |      |
| 2009                    | 6.47 | Moderate    | 2.42 |
| 2010                    | 6.53 | Moderate    | 1.21 |
| 2011                    | 6.72 | High        | 1.50 |
| 2012                    | 6.38 | Moderate    | 1.08 |
| 2013                    | 6.60 | Moderate    | 1.50 |

Table 3 shows the overall level of satisfaction of the graduates towards their curriculum. Items 1 to 4 have a moderate level of satisfaction with the following means and standard deviation respectively; (M = 6.55, SD = 1.75), (M = 6.59, SD = 1.69), (M = 6.48, SD = 1.82), (M = 6.39, SD = 1.85) while item no. 5 has a high (M = 6.75, SD = 2.02) level of satisfaction.

Table 3. *Overall Level of Satisfaction of the BSCA Graduates Towards the Curriculum*

| Item                                                                                                                 | M    | Description | SD   |
|----------------------------------------------------------------------------------------------------------------------|------|-------------|------|
| 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.55 | Moderate    | 1.75 |
| 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 6.59 | Moderate    | 1.69 |
| 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.48 | Moderate    | 1.82 |
| 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.39 | Moderate    | 1.85 |
| 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 6.75 | High        | 2.02 |

Table 4 shows the level of satisfaction of the graduates from 2009 to 2013 towards their curriculum. In 2009 graduates, items 1, 3, 4 and 5 have a “moderate” level of satisfaction with the following means and standard deviation respectively; (M = 6.22, SD = 2.68), (M = 6.55, SD = 2.65), (M = 6.44, SD = 2.40), (M = 6.33, SD = 2.50) while item no. 2 has a “high” (M = 6.78, SD = 2.49) level of satisfaction.



In 2010 graduates, items 2 and 4 have a “moderate” level of satisfaction with the following means and standard deviation respectively; (M = 6.00, SD = 1.79), (M = 6.36, SD = 1.57) while items no. 1, 3 and 5 have a “high” level of satisfaction as follows: (M = 6.82, SD = 1.33), (M = 6.73, SD = 1.19), (M = 6.73, SD = 1.79).

In 2011 graduates, items 1, 3 and 4 have a “moderate” level of satisfaction with the following means and standard deviation respectively; (M = 6.31, SD = 2.10), (M = 6.38, SD = 2.02), (M = 6.23, SD = 1.79) while items no. 2 and 5 have a “high” level of satisfaction as follows: (M = 7.15, SD = 1.41), (M = 7.54, SD = 2.11).

In 2012 graduates, items from 1 to 5 have a “moderate” level of satisfaction with the following means and standard deviation respectively; (M = 6.33, SD = 1.15), (M = 6.42, SD = 1.38), (M = 6.33, SD = 1.37), (M = 6.42, SD = 1.56), (M = 6.42, SD = 1.83).

In 2013 graduates, items from 2 to 4 have a “moderate” level of satisfaction with the following means and standard deviation respectively; (M = 6.58, SD = 1.58), (M = 6.47, SD = 1.93), (M = 6.47, SD = 2.09), (M = 6.63, SD = 2.03) while item no. 1 has a “high” (M = 6.84, SD = 1.57) level of satisfaction.

Table 4. *Level of Satisfaction of the BSCA Graduates From 2009 to 2013 Towards the Curriculum*

| Year | Item                                                                                                                 | M    | Description | SD   |
|------|----------------------------------------------------------------------------------------------------------------------|------|-------------|------|
| 2009 | 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.22 | Moderate    | 2.68 |
|      | 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 6.78 | High        | 2.49 |
|      | 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.56 | Moderate    | 2.65 |
|      | 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.44 | Moderate    | 2.40 |
|      | 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 6.33 | Moderate    | 2.50 |
| 2010 | 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.82 | High        | 1.33 |
|      | 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 6.00 | Moderate    | 1.79 |
|      | 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.73 | High        | 1.19 |
|      | 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.36 | Moderate    | 1.57 |
|      | 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 6.73 | High        | 1.79 |
| 2011 | 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.31 | Moderate    | 2.10 |
|      | 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 7.15 | High        | 1.41 |
|      | 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.38 | Moderate    | 2.02 |
|      | 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.23 | Moderate    | 1.79 |
|      | 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 7.54 | High        | 2.11 |
| 2012 | 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.33 | Moderate    | 1.15 |
|      | 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 6.42 | Moderate    | 1.38 |
|      | 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.33 | Moderate    | 1.37 |
|      | 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.42 | Moderate    | 1.56 |
|      | 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 6.42 | Moderate    | 1.83 |
| 2013 | 1. The contribution of <i>classroom experience</i> to your present employment status                                 | 6.84 | High        | 1.57 |
|      | 2. The contribution of your <i>practicum experience</i> to your competencies in your job                             | 6.58 | Moderate    | 1.58 |
|      | 3. The contribution of your <i>co-curricular experience</i> to your present job                                      | 6.47 | Moderate    | 1.93 |
|      | 4. The efforts exerted by your Unit Alma Mater in improving its services to better serve the students and the alumni | 6.47 | Moderate    | 2.09 |
|      | 5. The over-all performance of your Unit Alma Mater's alumni who work in the same company as your company            | 6.63 | Moderate    | 2.03 |

No significant difference existed in the level of satisfaction among the BSCA graduates when classified according to employment status, *Sig.* = 0.997, *p* > 0.05. The data are presented in Table 5.



Table 5. *t-test Results in the Level of Satisfaction among BSCA Graduates Classified According to Employment Status*

|            | Mean | df | t-value | Sig.  |
|------------|------|----|---------|-------|
| Employed   | 6.55 | 62 | 0.004   | 0.997 |
| Unemployed | 6.55 |    |         |       |

No significant difference existed in the level of satisfaction among the BSCA graduates when classified according to broker licensure status, *Sig.* = 0.406,  $p > 0.05$ . The data are shown in Table 6.

Table 6. *t-test Results in the Level of Satisfaction among BSCA Graduates Classified According to Broker Licensure Status*

|                 | Mean | df | t-value | Sig.  |
|-----------------|------|----|---------|-------|
| With License    | 6.62 | 62 | 0.389   | 0.406 |
| Without License | 6.48 |    |         |       |

No significant difference existed in the level of satisfaction among the BSCA graduates when classified according to year graduated, *Sig.* = 0.986,  $p > 0.05$ . The data are presented in Table 7.

Table 7. *One-way ANOVA Results in Differences in the Level of Satisfaction Among the BSCA Graduates Classified According to Year Graduated*

|                | Sum of squares | df | Mean Square | F    | Sig.  |
|----------------|----------------|----|-------------|------|-------|
| Between Groups | 0.838          | 4  | 0.209       | 0.88 | 0.986 |
| Within Groups  | 140.342        | 59 | 2.379       |      |       |
| Total          | 141.179        | 63 |             |      |       |

Table 8 shows the different suggestions of the BSCA graduates to the Unit Alma Mater to improve the quality of its graduates. Forty five percent ( $f = 29$ ) suggested that the program must be updated with the latest issuances from the Bureau of Customs as well as references, trainings and seminars, 33% ( $f = 21$ ) suggested to improve the quality of instruction by assigning competent instructors, 12% ( $f = 8$ ) suggested to provide students with good training and motivation, 6% ( $f = 4$ ) suggested to enhance the program by monitoring its alumni's employment and passing rates, and 3% ( $f = 2$ ) suggested to provide careers and opportunities to graduates who weren't able to pass or take the board examinations.

Table 8. *Suggestions of the BSCA Graduates to the Unit Alma Mater to Improve the Quality of its Graduates*

| Category                                                                                                                                          | f  | %   | Rank |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|------|
| Entire group                                                                                                                                      | 64 | 100 |      |
| Be updated with latest issuances of the Bureau of Customs, latest books and references as well as seminars and trainings.                         | 29 | 45  | 1    |
| Improve the quality of instruction by assigning competent and knowledgeable instructors on the subject matter.                                    | 21 | 33  | 2    |
| Provide students with good training and motivation for them to strive and expose them to actual practice.                                         | 8  | 13  | 3    |
| Provide opportunities to other related careers especially to those who weren't able to take or pass the board examination for customs brokers.    | 4  | 6   | 4    |
| Enhance the quality of the programs by monitoring employment rate, professional licensure passing rates, and alumni and employer survey comments. | 2  | 3   | 5    |

Table 9 shows the different suggestions of the BSCA Graduates to their Unit Alma Mater to improve its student/alumni services. Thirty eight percent (38%) ( $f = 24$ ) suggested to improve the school's facilities and adapt with new methods and technologies, 33% ( $f = 21$ ) suggested to strengthen the bond of the institution and its alumni, 17% ( $f = 11$ ) suggested to provide trainings and seminars to instructors, 9% ( $f = 6$ ) suggested to use effective advertising techniques for the BSCA Program; and 3% ( $f = 2$ ) suggested to provide more opportunities to deserving students.



Table 9. *Suggestions of the BSCA Graduates to their Unit Alma Mater to Improve the Student/Alumni Services*

| Category                                                                                                                           | f  | %   | Rank |
|------------------------------------------------------------------------------------------------------------------------------------|----|-----|------|
| Entire group                                                                                                                       | 64 | 100 |      |
| Improve the institution's facilities, and adapt to the recent technology, modern ideas and methods.                                | 24 | 38  | 1    |
| Strengthen the bond of the institution and its alumni by keeping in contact and by monitoring them to improve the alumni services. | 21 | 33  | 2    |
| Provide trainings and seminars to the teachers or instructors to effectively teach the students.                                   | 11 | 17  | 3    |
| Use effective advertising techniques for the BSCA Program.                                                                         | 6  | 9   | 4    |
| Provide more scholarship programs and opportunities for deserving students.                                                        | 2  | 3   | 5    |

Table 10 shows the BSCA graduates' other comments and suggestions. Forty two percent (42%) (f = 27) suggested to improve the students' cognitive and communication skills, 30% (f = 19) suggested to have the latest updates of events and technologies useful to classroom discussions, 14% (f = 9) suggested that lessons must also focus to other growing careers such as freight forwarding; and 14% (f = 9) suggested to make the lessons and subjects more interesting.

Table 10. *Other Comments and Suggestions from the BSCA Graduates*

| Category                                                                                                                                                             | f  | %   | Rank |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|------|
| Entire group                                                                                                                                                         | 64 | 100 |      |
| Improve the students' competencies in leadership, entrepreneurship and communication skills through thorough training and activities.                                | 27 | 42  | 1    |
| Have the latest updates of event as well as new technologies applicable to the improvement of the quality of instruction.                                            | 19 | 30  | 2    |
| Lessons taught by the instructors must not focus in customs brokerage alone but also in freight forwarding industry.                                                 | 9  | 14  | 3.5  |
| Make the lessons in the major subjects more interesting by providing activities that will help them nurture their critical thinking while enjoying at the same time. | 9  | 14  | 3.5  |

## Conclusions

The employment rate of the graduates was found to be "high" given that a big percentage of them were employed in the different fields.

The percentage of graduates with license against graduates without license was found to be "fair". This means that there is also a fair number among the graduates who passed the board exam and became Licensed Customs Brokers. Given the fair number of passers, it can be concluded that the school is somehow successful in producing customs brokers who are now practicing and engaging in the customs brokering profession. The BSCA graduates' level of satisfaction was found to be "moderate". This connotes that they are fairly satisfied with the curriculum they had. Their level of satisfaction when classified whether employed or unemployed, broker or non-broker, and year graduated has no significant difference.

Based on their suggestions, it can be concluded that a lot of facilities and new technology were not yet available during their time. The quality of instruction was not yet upgraded unlike now that the school adopted the Outcome-Based Education (OBE) which requires more participation from students and less from the instructors who will serve as the mediator.

As a whole, the Unit Alma Mater should continuously develop and improve its facilities and strengthen its bond with its alumni in upholding its mission to provide quality education and training to produce globally competitive manpower.

## Recommendations

In view of the findings and conclusions presented, the following statements are recommended.

1. *The Unit Alma Mater.* They should work hand in hand in monitoring its alumni which can give beneficial data about their employment status.



2. *The Dean of the College of Business.* The College of Business should help the BSCA Program in improving the quality of instruction by making a good plan of action to capture the students' interest towards their lessons, and create interactive and productive classroom discussions.

3. *The BSCA Program Head.* The Program Head should devise effective advertising techniques to enhance or boost the campaign of the program to increase the number of enrollees. The program must also work on other opportunities aside from customs brokering profession.

4. *Researchers.* Another tracer study should be conducted to keep track of the graduates by considering other variables not employed in this study.

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## Factors Affecting The Work Motivation Of BSBA Graduates Employed In Carcanmadcarlan: A Survey

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### Abstract

Motivating employees is a way to make them to give their best to the organization for the achievement of organizational goals. But choosing the strategy for motivation may differ from time to time and organization to organization because it is a psychological sensation and it is depending on the preference of employees. The study attempted to identify the intrinsic and extrinsic factors affecting the work motivation of BSBA Graduates working in different institutions here in CarCanMadCarLan area. With a view to collect primary data, an adopted questionnaire from the Republic of Macedonia (Employee Satisfaction Survey, 2009) was provided to 40 respondents. The study identified 11 broad categories of motivation factors such as (1) management, (2) employee competence, (3) training opportunities in the organization, (4) premises and technical working conditions, (5) remuneration, (6) relationships between employees, (7) workload, (8) influence, (9) responsibility, (10) trust and finally (11) image of the organization. The study found that intrinsic factors have a significantly higher impact on the employee's motivation than the extrinsic factors. Finally, the study concluded that the BSBA employees working in different institutions are adequately motivated. On the basis of these findings, implications of the finding for future study were stated.

Keywords: Employee's motivation; extrinsic factors; intrinsic factors; satisfaction; organization

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## Introduction

Motivation plays a key role in employee job performance. Employees are the key driving force of any organization who gives endless effort to put company's decisions into action with a view to achieve the goals of the organization. Employees, therefore, are regarded as an incomparable vital resource of organization, and the issue of employee's motivation has become a crucial part of the human resource strategy of an organization. "Motivation is the force that makes people choose a particular job, stay with that job and work hard in that job" (Lin, 2007).

Understanding what motivates Bachelor of Science in Business Administration Graduates employees and how they are motivated is the focus of this research study. The importance of employee motivation is established at all levels of the organization. In current condition, managers have to be aware of the factors that motivate their subordinates to perform well, while employees require understanding about their job expectations. Employer can only motivate workers by creating the conditions and environment that make people feel happy and satisfied to give their heart and soul to the job and the company.

Herzberg started the study job satisfaction in the 1950's in Pittsburg. The basis of Herzberg's work is in the Maslow's Hierarchy of Needs. He started with the idea that what causes the job satisfaction are the opposite of those things that cause job dissatisfaction. Herzberg found out that what makes people happy is what they do or the way they're utilized and what makes people unhappy is the way they're treated. Within the workplace, (White, 1959) motivation is define at the variable that drives employees to (1) "want to act" and (2) "choose to act" to succeed in the workplace. Further, motivation is explained as the energy that encourages work-related behavior and influences one's work style, direction, intensity and duration. There are two types of motivation at work, which stem from internal (intrinsic) and external (extrinsic) forces and are essential to production because they encourage employee to perform tasks. Internal motivation is very personal form of motivation and revolves around completing a task for the sake of self-fulfillment. In this case, an employee completes a task early because it is rewarding to him, not because of a reward might be earned. External motivation comes from other sources, including feedback from one's supervisor, team or company goal setting, and monetary reward. Thus the researchers wanted to know, whether Herzberg's theory of motivation is still applicable nowadays. Furthermore, this study attempts to identify factors affecting the work motivation of employees and identify the intrinsic and extrinsic factor that motivates most in doing their works.

## Statement of the Problem

The main problem of this research study is to identify the factors affecting the work motivation of BSBA graduates. Specifically, it sought to answer the following questions:

1. What is the profile of the respondent in terms of age, marital status, sex, municipality, year graduated, occupation and name of the company/organization and location?
2. How satisfied are the respondent in terms of intrinsic motivators such as relationships between employees, influence, responsibility, trust and management?
3. How satisfied are the respondent in terms of extrinsic motivators such as employee competency, training opportunities in the organization, premises and technical working conditions, remuneration, image of the organization and workload
4. What intrinsic factor and extrinsic factor motivates most of the respondents in their workplace?
5. Based on the findings of the study, a proposed intervention program will be conducted.

## Research Methodology

The study adopted a descriptive design and the target population comprised all BSBA Graduates employed within CARCANMADCARLAN area. A list of Bachelor of Science in Business Administration Graduates from year 2010-2014 was obtained from the Registrar's Office in SDSSU – Cantilan Campus. The researchers randomly sampled a total of 40 respondents using the Sloven formula and conventionally viewed as representative of a large population. Researchers requested the respondents their full cooperation and participation to answer the given questionnaires. The table below shows the five municipalities with the corresponding number of BSBA graduates employed in each municipality.



Table 1. *Number of Respondents*

| Municipality | No. of Respondents |
|--------------|--------------------|
| Carrascal    | 9                  |
| Cantilan     | 14                 |
| Madrid       | 5                  |
| Carmen       | 2                  |
| Lanuza       | 5                  |
| Total        | 40                 |

In gathering the data, the researchers used the questionnaire as the primary tool and supplemented by getting informative. An adopted questionnaire is used from the Republic of Macedonia (EMPLOYEE SATISFACTION SURVEY, 2009). The survey questionnaire instrument comprised two sections: a section concerning demographic information of age, marital status, sex, municipality, year graduated, occupation, and the name of the company/organization and its location and the 11 motivational factors (intrinsic and extrinsic) with corresponding statements. The questions were considered to be answered in a five-point Likert scale format for the motivation factors. The first portion of the survey collected demographic data about the participants. The second section of the survey consisted of the following eleven items used as motivational factors: management, employee competence, training opportunities in the organization, premises and technical working conditions, remuneration, relationships between employees, workload, influence, responsibility, trust, image of the organization and the last part of the questionnaire is the overall opinion of the respondents regarding on the motivational factors. These questions were answered in a 5-point Likert scale ranging from 1 as Not at all satisfied to 5 as Completely Satisfied.

The data collected was analyzed with a use of appropriate statistical tools, which include descriptive statistics. Such as frequency and percentage which were used to identify the total number from tally and determine the proportion of the data. And weighted mean which was used to determine the extent of motivation of BSBA Graduates. To describe the extent of the factors affecting the work motivation of BSBA graduates, the five point scale of scoring is used. These are as follows:

Table 2. *Adjectival Description of the Scores*

| Weighted points | Range Weighted Mean | Adjectival Description |
|-----------------|---------------------|------------------------|
| 5               | 4.21-5.0            | Completely satisfied   |
| 4               | 3.41-4.2            | Satisfied              |
| 3               | 2.61-3.4            | Moderately satisfied   |
| 2               | 1.81-2.60           | Unsatisfied            |
| 1               | 1.00-1.80           | Definitely unsatisfied |

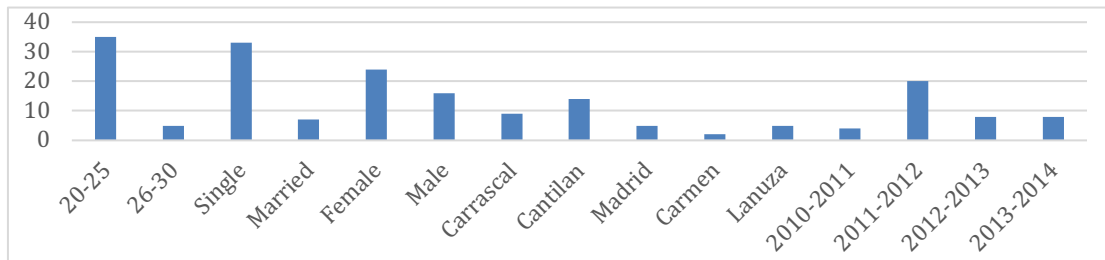
## Results and Discussion

The presentation, analysis and interpretation are illustrated with tables explained in the same order as they were presented in the statement of the problem. The data being presented includes the profile of the respondents in terms of age, marital status, sex, municipality, year graduated, occupation, name of the company and its location followed by the different motivational factors contains management, employee competence, training opportunities, premises and technical working conditions, remuneration, relationships between employees, workload, influence, responsibility, trust, image of the organizations and the overall opinion of the respondents on the following statements.



## Profile of the Respondents

Table 3. Profile of the Respondents



One of the objectives of our research is to know which age group has the greater participation in employed industry. After knowing the particular age group, it will be easy for management to concentrate on them and provide them opportunities to motivate and engage them in their work. The results of survey showed that 87% (35 respondents) of employees are between 20 and 25 years of age. Followed by 13% (5 respondents) of employees are between 26 and 28 and none of the respondents aged from 30 and 35. These results indicate that most of the employees are young. In terms of their marital status the result show that 31 (82.50%) employees were single and 7 (17.50%) married. Furthermore, 60% (24 females) represent were female employees whereas; only 40% (16 males) were male employees. The number of female employees is more as compared to male. Unexpectedly female participation in services industry is increasing which will increase competition for male in industry. The municipality is used to know the respondent's home town. This information will help organization to consider the distance between the respondent's residences to their destined working places. 22.50% (9 respondents) are from Carrascal; 35% (14 respondents) comes from Cantilan; 12.50% (5 respondents) from Madrid; only 5% (2 respondents) are from Carmen and 12.50% (5 respondents) comes from Lanuza. As the result shows more BSBA Graduates are residing in Cantilan. Lastly the graduation year of the respondents is used to identify how many graduates were employed in the end of their school year. Our survey results indicate that 20 of employees are graduate in year 2011-2012 (50%). 4 respondents (10 %) are graduate of year 2010-2011; 8 respondents (20%) are graduate of year 2012-2013 and 8 respondents also (20%) are graduate of year 2013-2014. As the result indicates more graduates are from year 2011-2012 than others.

## Factors Affecting the Work Motivation

Table 4. Motivation Factor: Management as immediate supervisor and expert body

| Management (Your immediate supervisor)                          | Descriptive Statistics |                      | Management (the expert body)                                     | Descriptive Statistics |                      |
|-----------------------------------------------------------------|------------------------|----------------------|------------------------------------------------------------------|------------------------|----------------------|
|                                                                 | Weighted Mean          | Descriptive Category |                                                                  | Weighted Mean          | Descriptive Category |
| Leadership skills of your immediate supervisor                  | 3.65                   | Satisfied            | Leadership skills of the Director                                | 4.12                   | Satisfied            |
| Management and professional skills of your immediate supervisor | 4.05                   | Satisfied            | Management and professional skills of members of the Expert Body | 3.83                   | Satisfied            |
| Conflict resolution skills of your immediate supervisor         | 4.23                   | Completely satisfied | Ability of the Expert Body to adapt to changes in society        | 4.05                   | Satisfied            |
| Communication between the immediate supervisor and employees    | 4.45                   | Completely satisfied | Transparency in the work of the Expert Body                      | 4.1                    | Satisfied            |
| Immediate supervisor's trust in fellow co-workers               | 4.13                   | Satisfied            |                                                                  |                        |                      |
| Average Weighted Mean                                           | 4.10                   | Satisfied            | Average Weighted Mean                                            | 4.03                   | Satisfied            |

Table 4 shows that Management of Immediate Supervisor has an average weighted mean of 4.10 with adjectival description of satisfied. Among 40 respondents, the study revealed that communication between the immediate supervisor and employees got the highest weighted mean of 4.45 among all indicators with its adjectival



description of completely satisfied while the supervisor's leadership got the lowest weighted mean of 3.65 with an adjectival description of satisfied. It also shows that Management of the Expert Body has an average weighted mean of 4.03 with adjectival description of satisfied. Among 40 respondents, the study found out that leadership skills of the Director got the highest weighted mean of 4.12 among all indicators with its adjectival description of satisfied while management and professional skills of members of the Expert Body got the lowest weighted mean of 3.83 with an adjectival description of satisfied. Leadership skills of the Director in every institutions is considerably important than others. A good leadership enables employees to have a good perception towards their organization.

Table 5. *Motivation Factor: Management [Application to immediate supervisor]*

| Statements                                                               | Variable   | Frequency | Percentage |
|--------------------------------------------------------------------------|------------|-----------|------------|
| My supervisor is knowledgeable about my work                             | I agree    | 40        | 100%       |
|                                                                          | I disagree | 0         | 0%         |
| My supervisor takes time to listen to me                                 | I agree    | 39        | 97.50%     |
|                                                                          | I disagree | 1         | 2.50%      |
| My supervisor provides me with sufficient information related to my work | I agree    | 38        | 95%        |
|                                                                          | I disagree | 2         | 5%         |
| My supervisor has reasonable expectations of my work                     | I agree    | 39        | 97.50%     |
|                                                                          | I disagree | 1         | 2.50%      |
| My supervisor cares for my career advancement                            | I agree    | 40        | 100%       |
|                                                                          | I disagree | 0         | 0%         |
| My supervisor offers me training opportunities                           | I agree    | 32        | 80%        |
|                                                                          | I disagree | 2         | 20%        |

Table 5 shows that 40 or 100% of the respondents "agree" on the statement that their supervisors were knowledgeable about their work; that their supervisors cares for their career advancement and do have reasonable expectations of their work. Whereas, 97.5% of the respondents agrees that their supervisor takes time to listen to them. Out of 40 respondents 38 of them stated that their supervisor provides sufficient information related to their work. It was also found out that 32 of respondents (80%) have agreed that their supervisors offer them training opportunities.

Table 6. *Motivation Factor: Management [Skills of the Immediate Supervisor]*

| Statements                                    | Descriptive Statistics |                      |
|-----------------------------------------------|------------------------|----------------------|
|                                               | Weighted mean          | Descriptive Category |
| Management skills of the immediate supervisor | 4.13                   | Satisfied            |
| Management skills of the Expert Body          | 3.93                   | Satisfied            |
| Average Weighted Mean                         | 4.03                   | Satisfied            |

Table 6 shows that Management Skills of Immediate and the Expert Body takes an average weighted mean of 3.98 with adjectival description of satisfied. It came out that management skills of the immediate supervisor got the highest weighted mean of 4.03 while management skills of members of the Expert Body got the lowest weighted mean of 3.93 with an adjectival description of satisfied. In the absence of management skills no organization can run successfully. Based on the results, a management skill of the immediate supervisor is the one who brings prosperity in the organization wherein he lead his people in a manner that along with organizational goal individual goal of employees is also achieved.



Table 7. *Motivation Factor: Employee Competence*

| Employee Competence                                                                                   | Descriptive Statistics |                      | Training Opportunities in Organization                                                       | Descriptive Statistics |                      |
|-------------------------------------------------------------------------------------------------------|------------------------|----------------------|----------------------------------------------------------------------------------------------|------------------------|----------------------|
|                                                                                                       | Weighted mean          | Descriptive category |                                                                                              | Weighted Mean          | Descriptive category |
| The available opportunity in improving your skills and knowledge in the course of your work           | 3.7                    | Satisfied            | I have not had all the opportunity to participate in any training program in the institution | 3.3                    | Satisfied            |
| The work activities compared to your skills and the opportunities for improving your competence level | 3.75                   | Satisfied            | Training helped me improve my work efficiency                                                | 3.98                   | Satisfied            |
| The clients' respect for the competence of thee employees                                             | 3.75                   | Satisfied            | Training helped me advance in my career                                                      | 3.93                   | Satisfied            |
| The public's respect for the competence of the employees                                              | 3.83                   | Satisfied            | Training offers me possibilities to apply for jobs outside the organization                  | 3.83                   | Satisfied            |
| The career development opportunities                                                                  | 3.9                    | Satisfied            | Your training opportunities in general                                                       | 3.85                   | Satisfied            |
| Your competence in general                                                                            | 3.83                   | Satisfied            | Average Weighted Mean 3.78                                                                   |                        | Satisfied            |
| Average Weighted Mean                                                                                 | 3.79                   | Satisfied            |                                                                                              |                        |                      |

Table 7 showed that employee competence has an average weighted mean of 3.79 with adjectival description of satisfied. Among 40 respondents the study showed that career development opportunities got the highest weighted mean of 3.9 among all indicators with its adjectival description of satisfied while the available opportunity in improving respondents' skills and knowledge in the course of their work got the lowest weighted mean of 3.7 with an adjectival description of satisfied

The table above also shows that training opportunities in the organization has an average weighted mean of 3.78 with adjectival description of satisfied. Training shapes the thinking of employees and leads to quality performance of employees. Employees who feel appreciated and challenged through training opportunities may feel more satisfaction toward their jobs.

Table 8. *Motivation Factor: Premises and Technical Working Conditions; and Remuneration*

| Premises and Technical Working Conditions      | Descriptive Statistics |                      | Remuneration                                             | Descriptive Statistics |                      |
|------------------------------------------------|------------------------|----------------------|----------------------------------------------------------|------------------------|----------------------|
|                                                | Weighted mean          | Descriptive category |                                                          | Weighted Mean          | Descriptive Category |
| Balance between personal and professional life | 3.83                   | Satisfied            | Your salary compared to work you perform                 | 3.53                   | Satisfied            |
| Workload pressure in general                   | 3.85                   | Satisfied            | The current model for rewarding overtime work            | 3.38                   | Satisfied            |
| Average Weighted Mean                          | 3.84                   | Satisfied            | Your salary compared to other external comparable groups | 3.48                   | Satisfied            |
|                                                |                        |                      | The current remuneration in the organization as a whole  | 3.58                   | Satisfied            |
|                                                |                        |                      | Average Weighted Mean                                    | 3.63                   | Satisfied            |

Table 8 shows that premises and technical working conditions has an average weighted mean of 3.84 with adjectival description of satisfied. Among 40 respondents, the study found out that employees handle their



workload pressure in a positive way. It also shows that remuneration has an average weighted mean of 3.49 with adjectival description of satisfied

Table 9. *Motivation Factor: Relationships between Employees*

| Statements                                                         | Descriptive Statistics |                      |
|--------------------------------------------------------------------|------------------------|----------------------|
|                                                                    | Weighted mean          | Descriptive category |
| Involvement of people with other competencies in your work         | 3.7                    | Satisfied            |
| Respect from your co-workers                                       | 4.13                   | Satisfied            |
| Possibilities to receive assistance from co-workers when necessary | 3.98                   | Satisfied            |
| Teamwork: In the institution                                       | 3.98                   | Satisfied            |
| Teamwork: In your sector                                           | 4.05                   | Satisfied            |
| Relationships between employees in general                         | 4.05                   | Satisfied            |
| Average Weighted Mean                                              | 3.98                   | Satisfied            |

Table 9 showed the relationships between employees. The study revealed that relationships between employees has an average weighted mean of 3.98 with adjectival description of satisfied. Having the respect from coworkers is important to job success and fulfillment.

Table 10. *Motivation Factor: Workload*

| Statements                                                  | Descriptive Statistics |                      |
|-------------------------------------------------------------|------------------------|----------------------|
|                                                             | Weighted mean          | Descriptive category |
| Current fixed working hours                                 | 3.8                    | Satisfied            |
| Number of employees available for performing work tasks     | 3.75                   | Satisfied            |
| Sanctions for errors committed                              | 3.55                   | Satisfied            |
| Workload pressure                                           | 3.7                    | Satisfied            |
| The access to equipment necessary for performing your tasks | 3.9                    | Satisfied            |
| The current maintenance in the building                     | 3.9                    | Satisfied            |
| The hygiene maintenance in the organization                 | 4                      | Satisfied            |
| The hygiene maintenance in your office                      | 4.05                   | Satisfied            |
| Physical working conditions as a whole                      | 3.93                   | Satisfied            |
| Average Weighted Mean                                       | 3.84                   | Satisfied            |

Table 10 shows that workload has an average weighted mean of 3.84 with adjectival description of satisfied. Respondents believed that better hygiene in office would boost the productivity. If the office is more hygienic employer could see an intense in productivity and efficiency.

Table 11. *Motivation Factor: Influence*

| Statements                                                                        | Descriptive Statistics |                      |
|-----------------------------------------------------------------------------------|------------------------|----------------------|
|                                                                                   | Weighted mean          | Descriptive category |
| Your participation in the planning process in the organization                    | 3.73                   | Satisfied            |
| The possibility to elaborate on your opinion about different work-related aspects | 3.55                   | Satisfied            |
| Your co-workers' respect                                                          | 3.7                    | Satisfied            |
| Your influence on the work processes as a whole                                   | 3.55                   | Satisfied            |
| Average Weighted Mean                                                             | 3.63                   | Satisfied            |

Table 11 showed that influence of different institutions has an average weighted mean of 3.63 with its adjectival description of agree. Among the 40 respondents, the study showed that participation in the planning process in the organization got the highest weighted mean of 3.73 with its adjectival description of satisfied while the





possibility to elaborate on opinion about different work-related aspects and the influence on the work processes as a whole got the lowest weighted mean of 3.55 with its adjectival description of satisfied.

Table 12. *Motivation Factor: Responsibility and Trust*

| Responsibility                                           | Descriptive Statistics |                      | Trust                               | Descriptive Statistics |                      |
|----------------------------------------------------------|------------------------|----------------------|-------------------------------------|------------------------|----------------------|
|                                                          | Weighted mean          | Descriptive category |                                     | Weighted mean          | Descriptive category |
| How employees spend their working time                   | 3.78                   | Satisfied            | Trust in the director               | 4.08                   | Satisfied            |
| Responsibility for work errors                           | 3.9                    | Satisfied            | Trust in the Head of the sector     | 4.03                   | Satisfied            |
| Responsibility towards clients                           | 4.05                   | Satisfied            | Trust in the head of the Department | 4.13                   | Satisfied            |
| Responsibility of immediate supervisors toward employees | 4.08                   | Satisfied            | Trust among employees in general    | 4.1                    | Satisfied            |
| Responsibility in the organization as a whole            | 3.98                   | Satisfied            |                                     |                        |                      |
| Average Weighted Mean                                    | 3.96                   | Satisfied            | Average Weighted Mean               | 4.09                   | Satisfied            |

Table 12 showed that responsibility of different institutions has an average weighted mean of 3.96 with its adjectival description of agree. Among the 40 respondents, responsibility of immediate supervisors toward employees got the highest weighted mean of 4.08 with its adjectival description of satisfied while the statement how employees spend their working time got the lowest weighted mean of 3.78 with its adjectival description of satisfied. Generally employees seem to agree that there immediate supervisor take responsibility for the duties they are expected to perform in order to achieve their goals.

The table also shows that trust in the organization has an average weighted mean of 4.09 with adjectival description of satisfied. Among 40 respondents, it came out that trust in the Head of the Department got the highest weighted mean of 4.13 among all indicators with its adjectival description of completely satisfied while the trust in the head of the sector got the lowest weighted mean of 3.65 with an adjectival description of satisfied. From the ideas represented, it can be concluded that trust in superiors has many advantages for individuals as well as organizations.

Table 13. *Motivation Factor: Image of the Organization*

| Statements                                                             | Descriptive Statistics |                      |
|------------------------------------------------------------------------|------------------------|----------------------|
|                                                                        | Weighted mean          | Descriptive category |
| Image of the institution                                               | 4.08                   | Satisfied            |
| Public opinion on the image of the institution                         | 3.98                   | Satisfied            |
| Organization activities toward increasing the image of the institution | 4.13                   | Satisfied            |
| Image of the organization as a whole                                   | 4.1                    | Satisfied            |
| Average Weighted Mean                                                  | 4.07                   | Satisfied            |

Table 13 shows the Image of the Organization has an average weighted mean of 4.07 with adjectival description of satisfied. Among 40 respondents, the study found out that the organization activities toward increasing the image of the institution got the highest weighted mean of 4.13 among all indicators with its adjectival description of satisfied while the public opinion on the image of the institution got the lowest weighted mean of 3.98 with an adjectival description of satisfied. In business of all sizes, it is vital that managers recognize the importance of creating and maintaining a strong image, and that they also make employees aware of it. Organizational image begins within the offices of a company's managers. An institution that mismanages or ignores its image is likely to encounter a variety of problem.

The study also found out that employees believe that their organization have a good connection to environment with a weighted mean of 3.93 with its adjectival description of satisfied while the human resource management



and communication between employees in organization and work expectation got the lowest weighted mean of 3.88 with its adjectival description of satisfied.

Table 14. *Extrinsic and Intrinsic factors that motivates most of the respondents*

| Extrinsic Factor                           | Average Weighted Mean | Intrinsic Factor                | Average Weighted Mean |
|--------------------------------------------|-----------------------|---------------------------------|-----------------------|
| Image of the Organization                  | 4.09                  | Trust                           | 4.09                  |
| Premises and Technical Working Conditions  | 3.84                  | Management                      | 4.08                  |
| Employee Competence                        | 3.79                  | Relationships between employees | 3.98                  |
| Training Opportunities in the Organization | 3.78                  | Responsibility                  | 3.96                  |
| Remuneration                               | 3.49                  | Workload                        | 3.84                  |
|                                            |                       | Influence                       | 3.63                  |

Table 14 shows the ranking order for the extrinsic intrinsic factors of motivation. It is clear from the table that Image of the Organization with an average weighted mean of (4.09) has strong impact on the job performance followed by the Premises and Technical Working Conditions (3.84); Employee Competence (3.79); Training Opportunities in the Organization (3.78) and Remuneration (3.49). It also further shows that the ranking order for the intrinsic factors of motivation. It is clear from the table that Trust with an average weighted mean of (4.09) has strong impact on the job performance followed by the Management (4.08); Relationship between employees (3.98); Responsibility(3.96); Workload (3.84) and Influence (3.63). Both the male and female respondents strongly believe that motivation directly affects the performance level and benefit correspondences caused by motivation.

## Conclusion

Based on the findings of the study, conclusions are hereby drawn. The study attempted to identify motivational factors and indicators that affect the employee's motivation working at different institutions here in CarCanMadCarLan area. Based on the results, it was proven that the Herzberg Two-Factor Theory of Motivational is still used in some organizations for motivating the employees. In order to make employees work competently and produce valuable results to the organization, managers have to understand human behavior. Motivation is an important part of understanding behavior and is a tool with which managers can use in organizations to make people do what they want. The subject of this study is to investigate the intrinsic and extrinsic factors on employee motivation. The findings of the study revealed that both intrinsic and extrinsic factors affect workers while they achieve their tasks. Another result is that intrinsic factors are more motivating than extrinsic factors. Moreover, this research suggested 11 motivational factors with following statements. If managers do choose to take action and absorb the proposed motivational strategies, instead of whining about being helpless, than there is a good chance that institutional administration performance will improve dramatically. As a final statement, managers need to address all hygiene (extrinsic) and motivator (intrinsic) factors to motivate employees (Herzberg, 1959).

## Recommendations

Recommendations that follow are aimed at specifically improving these areas of concern.

1. Organizations should establish good leaders within the organization and that management would conduct a seminar about leadership participated by the immediate supervisor since the study revealed that it has to be improved. The study also recommends that the management needs to develop a good leadership skill not just only to supervisors but employees as well need it for leadership is an important factor in making an organization successful.
2. Since it was evident in the study that the available opportunity in improving skills and knowledge in the course of work was not good, the study therefore recommends that manager should identify the knowledge, skills, and abilities of employees so that they can train them accordingly. Also, organizations must provide them time, benefits and funds according to their employees' requirement so that they can be the best employee and that they can contribute to the success of the organization.



3. For the implementation of training program inside the organization, researchers recommend that management must be fair enough to all employees - that they deserve to attend some seminars or any training programs offered by the company because that's one of their needs. Also, HR should determine what seminars are suitable and ensure employees attend these seminars as often as possible.
4. Seeing that the current model for rewarding overtime work was not adequate, the researcher recommends that management need to ensure that working beyond office hours need additional salaries. Management should base their additional salary on their employee handbook or in the labor code for legal basis. They have to ensure that employee salaries are reviewed to guarantee that employee wages are enough. It is important to remember that the cost of replacing a trained individual is far greater than the cost of retaining an existing one; therefore, ensuring that employees are paid with the right pay for overtime work is vital for employee retention.
5. Since it was found out in the study that the management has insufficient information about how their employees spend their working time, the study recommend that management must conduct an investigation regarding to this concern. Managers or heads of the department have to make sure that their employees are performing their own duties and responsibilities during working hours.
6. The study suggests that to have a good expectation with regards to the work environment, employees must approach their supervisor to address their concerns with regards to their work environment and as a supervisor, after hearing the problem; you have to take action as soon as possible. Aside from this concern, since it was evident that the communication between employees in the organization needs a little bit improvement, the study therefore recommends that management should establish a good communication process. To be able to understand employees and learn their expectations and opinions, human resource management needs to make effective use of the communication.
7. It is suggested that for future research, a comparable stratified random sample be used to compare several institutions using a larger sample.
8. It is recommended that future research would gather more motivational factors for the better understanding of how a certain employee is motivated and what is the action to be taken by the manager for him to satisfy the wants and needs of his subordinates.

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## **Predictive Decision Support System using Logistic Regression and Decision Tree Model Combination for Student Graduation Success Determination**

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### **Abstract**

More recently, researchers and higher education institutions are also beginning to explore the potential of data mining in analyzing academic data. The goal of such endeavor is to find means to improve the services that these institutions provide and to enhance instruction. This type of data mining application is more popularly known as educational data mining or EDM. At present, EDM is more particularly focused on developing tools that can be used to discover patterns in academic data. It is more concerned in exploring huge amount of data in order to identify patterns about the microconcepts involved in learning. This area of EDM is often referred to as Learning Analytics – at least as it is commonly compared to more prominent data mining approaches which process data from large repository for better decision-making. One main topic under educational data mining is student graduation. In the Philippines According to National Statistic Office, there is an imbalance between the student enrolment and student graduation. Almost half of the first time freshmen full time students who began seeking a bachelor's degree do not graduate on time. This scenario indicates the need to conduct research in this area in order to build models that can help improve the situation. The study focused to extract hidden patterns from the data set using logistic regression and decision tree algorithms that can be used to predict to early identification of students who are vulnerable of not having graduation on time so proper retention policies and measure be implemented by the administration.

Key words: decision tree; algorithm; data mining; student graduation; prediction; analytics; data; accuracy; classification algorithm

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## Introduction

The proposed study is an applied research (Roll Hansen, 2009)[1] focused on analyzing student graduation rate (SGR). SGR is the percentage of a school's first-time, first-year undergraduate students who complete their program successfully. Studies show that most freshmen students enrolled in tertiary level do not graduate. According to (Lu, 1994)[2] part of the reason is because they are underprepared to make a successful transition from high school to college. Seidman (2005)[3] in the other hand, defines student retention as the "ability of a particular college or university to successfully graduate the students that initially enroll at that institution.

Research studies from HEIs already indicated that early identification of leaving students and intervention program are key to understanding what factors lead to student graduation. In the Philippines, according to Philippine Statistic authority the rate between enrollment and graduates is imbalance.

Institutions should utilize Siedman's retention formula for student success: RETention = Early (Identification) + (Early + Intensive + Continuous) Intervention. As such, early identification of potential leavers and successful intervention program(s) are the key for improving student graduation.

Addressing this problem is critical because universities with high leaver rates go through loss of fees, tuition, and potential alumni contributors. The early identification of vulnerable students who are prone to drop their courses is crucial for the success of any retention strategy and helps improve and increase the chance in staying in course chosen. According to Raju (2011), predictive modeling for early identification of students at risk could be very beneficial in improving student graduation. Research studies show that early identification of leaver students and intervention programs are key aspects that can lead to student graduation.

## Research Questions

The three specific research questions that this study aims to address are the following:

1. What data mining technique provides better classification in predicting student graduation?
2. What data model be created that improves the accuracy of predicting student graduation?
3. How effective and usable is the design of the Student Graduation Prediction prototype based on the evaluation of administration?

## Literature Review

### Data Mining

Data Mining is application of a specific algorithm in order to extract patterns from data. KDD has become a very important process to convert this large wealth of data in to business intelligence, as manual extraction of patterns has become seemingly impossible in the past few decades. Data Mining is a step inside the KDD process, which deals with identifying patterns in data. It is only the application of a specific algorithm based on the overall goal of the KDD process.

### Decision Tree

Decision tree learning is one of the most significant classifying techniques in data mining and has been applied in many areas, including business intelligence, healthcare, biomedicine, and so forth. The traditional approach to building a decision tree, designed by Creedy Search, loads a full set of data into memory and partitions the data into a hierarchy of nodes and leaves (Hang Yang, 2013) [4]

Decision tree builds classification or regression models in the form of a tree structure. It breaks down a dataset into smaller and smaller subsets while at the same time an associated decision tree is incrementally developed. The final result is a tree with decision nodes and leaf nodes. The topmost decision node in a tree which corresponds to the best predictor called root node. Decision trees can handle both categorical and numerical data.



### *Logistic Regression*

Logistic regression is a statistical method for analyzing a dataset in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable. It is a basic tool for modeling trend of a binary variable depending on one or several regressors (continuous or categorical). From the statistical point of view, it is the most commonly used special case of a generalized linear model. At the same time, it is also commonly used as a method for classification analysis (Agresti, 1990)[7].

### *Related Works*

Schuman (2005)[7] proved that the cross industry standard process for data mining can be a good use to academic analytics. The methodology was development and has been applied in an industry based domain sets to determine relationship among sets of variables and possibility to be applied to student achievement and behaviors. Data mining can be widely used for education as it can determine the variables influencing their students' achievement in both elation and caution using the data mining methodologies as a tool to improve student achievement.

(Kesavulu, Reddy, & Rajulu, 2011)[8] Used tree rules in which it can handle high dimensional data and its representation of acquired knowledge in tree forms can be easily assimilate by human brain. Decision trees are able to process both numerical and categorical data without requiring any domain knowledge to classify their data. The data is partitioned according to the best split and this in turn creates a new second partition rule. The process goes on until there are no more splits. The resulting tree is known as a maximal tree. The rules generated from the decision tree model will be used in the prediction in the new testing sets .

Goker (2012)[9] used accuracy rate and error estimation as basis to determine the effectiveness of the algorithm. The study reveals that Bayes classifier was selected as having the highest performance measure

### **Methodology**

This section presents the research design, specifically, the method and techniques, the respondents of the study, the instrument of the study, and the development model and data processing and statistical treatment that will be applied in the study The researcher used the steps of Knowledge Discovery in Databases and CRISP-DM methodologies in creating the study.

There are two-step processes of data classification. The training sets of data is determined by analyzing a set of training database instance until a data model will be build that describes a predetermined set of classes or concepts.

The second step is testing data; the model is tested using a different data set that is used to estimate the classification accuracy of the model. If the accuracy of the model is acceptable, the model can be used to classify future data instances for which the class label is not known. The researcher used decision tree in predicting student graduation

### *Data sets and Attributes*

The attributes used in the study consists of demographic profile, first year first term grades and entrance examination.





Table 1. Attributes Description  
 Data Sets and Attributes

| Name                  | Role  |
|-----------------------|-------|
| Graduation_status     | Input |
| Gender                | Input |
| School_Year           | Input |
| Location              | Input |
| Scholarship           | Input |
| Verbal_Equivalence    | Input |
| Science_Equivalence   | Input |
| Numeric_Equivalence   | Input |
| Abstract_Equivalence  | Input |
| General_Point_Average | Input |
| Algebra               | Input |
| English               | Input |
| IT_Fundamentals       | Input |
| Programming_1         | Input |
| Physical_Ed           | Input |
| Values_Ed             | Input |

Variable Descriptions Graduation status – Target Variable – Labeled 0 was coded for students who failed to graduate on time and 1 was coded for students who graduated on time. Gender – Students Gender - Labeled 1 was coded for the male students and 2 was coded for female. Location – Location of the Students – Labeled 1 was coded for students who are living in Metro Manila and 2 was coded for students who are living outside Metro Manila. Scholarship - Financial assistance given by the school –Labeled 1 was coded for students who availed financial help, and 2 was coded for students who were not given financial assistance. Entrance Examination Results – The entrance examination were composed of Abstract, Verbal, Numeric and Science. The four categories of entrance examination were set as categorical particularly ordinal type of data sets.

First Year First Term Grade - The first year first term subjects were composed of Algebra, IT fundamentals, Programming, English, Values Education and Physical Education. Values of this section were set as categorical particularly ordinal.

### Modeling

The decision tree with a binary target graduation has two outcomes, YES or NO or it can be applied as 1 or 2. Input variables such as demographic student's data, entrance examination and first year first term grades can be in a form of categorical and binary values. Categorical values can be applied on first year first term student grade and entrance examination results. Binary values can be applied on some of demographic data of student examples are gender, location, scholarship and financial aid.

Decision tree builds classification or regression models in the form of a tree structure. It breaks down a dataset into smaller and smaller subsets while at the same time an associated decision tree is incrementally developed. It is a tree-shaped structure that represents a set of decisions. It is a popular algorithm useful for many classification problems that can help explain the model's logic using human readable "If...Then..." rules. Decision tree splitting rule:

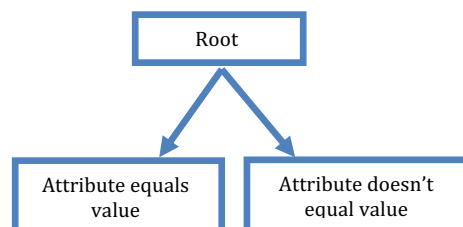


Fig1. Decision Tree Splitting Rule

### Logistic Regression

Logistic regression uses the Logit model. It provides an association between the independent variables and the logarithm of the odds of a categorical response variable. Since the target variable *graduation* is a binary (yes/no) response a binary logistic regression model was used. Logistic regression analysis applies maximum likelihood estimation after transforming the dependent variable (graduation) into a Logit variable. Logistic regression will estimate the odds that an existing student graduated or not graduated.

### Modeling

The decision tree and logistic regression with a binary target graduation has two outcomes, YES or NO or it can be applied as 1 or 2. Input variables such as demographic student's data, entrance This stage involves evaluating the models built in the model building stage. The most common way to evaluate models is to verify their performances on the test datasets. Evaluation of the models can be easily determined by observing the number of correct predictions to the total number of predictions.

Table 2. Classification Rate Table

| Predicted | Performance Measure of the Algorithm |                                 |                                 |
|-----------|--------------------------------------|---------------------------------|---------------------------------|
|           |                                      | Yes                             | No                              |
|           | Yes<br>No                            | True Positive<br>False Negative | False Positive<br>True Negative |

To determine the accuracy level of the classification table of the algorithms the formula were used where TP Number of actual outcomes of graduation 'yes' accurately classified as predicted graduation 'yes'. TN Number of actual outcomes of graduation 'yes' inaccurately classified as predicted graduation 'no'. FN Number of actual outcomes of graduation 'no' inaccurately classified as predicted graduation 'yes'. TN Number of actual outcomes of graduation 'no' accurately classified as predicted graduation 'no'

## Results and Discussion

### Accuracy Results of Logistic Regression in Predicting Student Graduation

Table 3. Logistic Regression Values in the Equation

| Values in the Equation    |       |       |        |                 |
|---------------------------|-------|-------|--------|-----------------|
|                           | B     | S.E.  | Wald   | Odds Ratio (OR) |
| Gender (X1)               | 0.888 | 0.196 | 20.613 | 2.44            |
| Scholarship (X2)          | 0.999 | 0.283 | 12.243 | 0.36            |
| Verbal Equivalence (X3)   | 0.307 | 0.081 | 14.234 | 1.29            |
| Abstract Equivalence (X4) | 0.25  | 0.076 | 10.726 | 1.29            |
| Algebra (X5)              | 0.289 | 0.138 | 4.403  | 1.33            |
| IT Fundamentals (X6)      | 0.43  | 0.131 | 10.846 | 1.54            |
| Programming1 (X7)         | 0.567 | 0.13  | 19.129 | 1.77            |
| Programming1 (X7))        | 0.423 | 0.133 | 10.084 | 1.53            |
| Constant                  | 5.716 | 0.842 | 46.119 | 0.004           |

Analysis of the data reveals that eight variables significantly predicts graduation status, namely: gender (B=.888,  $p<.01$ , OR=2.44), scholarship (B=-.991,  $p<.01$ , OR=.36), verbal (B=.307,  $p<.01$ ), abstract (B=.250,  $p<.01$ , OR=1.29), algebra (B=.289,  $p<.05$ , OR=1.33), IT fundamentals (B=.430,  $p<.01$ , OR1.54), programming (B=.567,  $p<.01$ , OR=1.77) and values (B=.423,  $p<.01$ , OR=1.53). Moreover, the data fit the model statistically as shown by



the goodness of fit test, called Hosmer Lemeshow Test, with nonsignificant chisquare (Chisquare = 5.393, df=8, p >.05)

Gender has a positive B coefficient, indicating that female students (coded 2) have higher odds of graduating than male students (coded 1). Female's odds of graduating is 2.44 times higher than males. On the other hand, the negative B coefficient in scholarship indicates that students without scholarship (coded 2) have lower odds of graduating as compared to those with scholarship (coded 1). The odds of graduating for those with scholarship is almost three (1/.36=2.78) times higher than those without scholarships.

The B coefficients for verbal analogy and abstract reasoning as components in the entrance examination of the university are positive, indicating that the higher the scores of the students in the verbal analogy and abstract reasoning components, the higher the likelihood that they will graduate to the program that they enrolled. The odd ratio of 1.29 for both verbal analogy and abstract reasoning indicates that for every one (1) point increase in the score in verbal analogy or abstract reasoning, the likelihood of finishing the degree increases by 1.29 times.

The same pattern of data can be observed in the grades of the students. That is, the B coefficients of the academic subjects such as algebra, IT Fundamentals, Programming 1, and values education are positive, indicating that the higher the grades of the students on such subjects the higher the odds of completing the degree.

Table 4. Classification of Logistic Regression Algorithm Results

| Observed           | Percent Correct |
|--------------------|-----------------|
| 0                  | 94.7%           |
| 1                  | 49.2%           |
| Overall Percentage | 87.4%           |

The table above reveals that logistic regression recorded a an accuracy rate 87.4 in predicting student graduation.

#### *Accuracy Results of Decision Tree Algorithm in Predicting Student Graduation*

Table 5. Classification Table of Decision Tree Algorithm Results

| Observed           | Percent Correct |
|--------------------|-----------------|
| 0                  | 97.73%          |
| 1                  | 31.61%          |
| Overall Percentage | 86.77%          |

The table above reveals that decision tree algorithm recorded a an accuracy rate 87.4 in predicting student graduation.

#### *Data Model Results of Logistic Regression in Predicting Student Graduation*

The values in the equation found on Table III of the logistic regression can be written in equation form. Following the equation of logistic regression discussed in Agresti (1996),

The logistic function can take an input with any value from negative to positive infinity, whereas the output always takes values between zero and one and hence is interpretable as a probability. The logistic function can be written as

$$\text{logistic}(x) = \frac{1}{1 + e^{-x}}$$

$$p(y = 1|\mathbf{x}, \mathbf{a}) = \text{logistic}(a_1x_1 + a_2x_2)$$

Fig2. Logistic Regression Formula



The probability of graduating can be expressed as a function of the predictors as follows:

$$\text{Prb (grad)} = \frac{1}{1 + e^{-(5.716 + .888 * x_1 + .991 * x_2 + .307 * x_3 + .250 * x_4 + .289 * x_5 + .430 * x_6 + .567 * x_7 + .423 * x_8)}}$$

Such equation can be used to compute the probability of graduating for incoming students in the university. The resulting probability can be used as basis in classifying students whether they will graduate or not. To classify whether a student will graduate or not, a .50 probability cut-off are used in practice. That is, a student is classified as not graduated if the resulting probability is .50 or lower and classified as graduated if the resulting probability is greater than .50.

To determine and evaluate the goodness-of-fit of a logistic regression model it will be tested based on the simultaneous measure of sensitivity (True positive) and specificity (True negative) to possible cut of points through receiver operating characteristic curve.

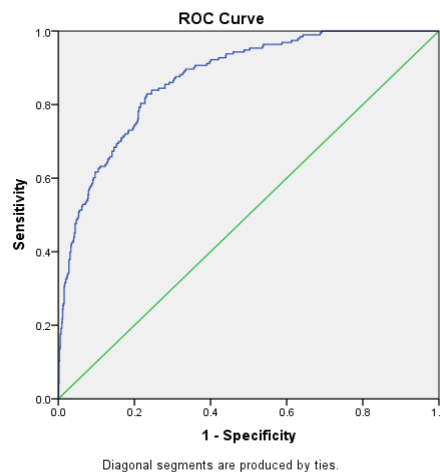


Fig 3. ROC Curve of Logistic Regression Model

Table 6. Test Results Area Under the Cure

| Area Under the Curve                           |                         |                              |                                    |             |
|------------------------------------------------|-------------------------|------------------------------|------------------------------------|-------------|
| Test Result Variable(s): Predicted probability |                         |                              |                                    |             |
| Area                                           | Std. Error <sup>a</sup> | Asymptotic Sig. <sup>b</sup> | Asymptotic 95% Confidence Interval |             |
|                                                |                         |                              | Lower Bound                        | Upper Bound |
| .872                                           | .013                    | .000                         | .846                               | .897        |

The results in the table V reveals that output shows ROC curve. The area under the curve is .872 with 95% confidence interval (.846, .897). Also, the area under the curve is significantly different from 0.5 since p-value is .000 meaning that the logistic regression classifies the group significantly better than by chance.

Since the model classifies group significantly better by chance, the generated data model of the logistic regression were then tested to new testing sets of data.

#### *Data Model Results of Decision Tree Algorithm in Predicting Student Graduation.*

The rule sets derived from the decision tree algorithm using CHAID method consists of 17 rules for non-graduates on time (coded 0) and for graduates (coded 1).



Table 7. Rule set of Decision Tree for Non Graduates

| Rule | IT Fundamentals  | Values | Programming 1 | Algebra       | Gender | Verbal Equivalent | Abstract Equivalent | Scholarship |
|------|------------------|--------|---------------|---------------|--------|-------------------|---------------------|-------------|
| 1    | <=0.50           | <=3    |               |               |        |                   |                     |             |
| 2    | <=0.50           | >3     |               |               |        |                   |                     |             |
| 3    | >0.50 and <=1.50 |        | <=2           | <=1.50        | 1      |                   |                     |             |
| 4    | >0.50 and <=1.50 |        | <=2           | <=1.50        | 2      |                   |                     |             |
| 5    | >0.50 and <=1.50 |        | <=2           | >1.50         |        | <=2               |                     |             |
| 6    | >0.50 and <=1.50 |        | <=2           | >1.50         |        | >2                |                     |             |
| 7    | >0.50 and <=1.50 |        | >2            |               |        |                   | <=0.50              |             |
| 8    | >0.50 and <=1.50 |        | >2            |               |        |                   | >0.50               |             |
| 9    | >1.50 and <=2.50 |        | <=1           | <=1           |        |                   |                     |             |
| 10   | >1.50 and <=2.50 |        | >1            | <=1           |        |                   |                     |             |
| 11   | >1.50 and <=2.50 |        |               | >1 and <=2.50 |        | <=2               |                     |             |
| 12   | >1.50 and <=2.50 |        |               | >1 and <=2.50 |        | <=2               |                     |             |
| 13   | >1.50 and <=2.50 |        |               | >1 and <=2.50 |        | >2                |                     |             |
| 14   | >1.50 and <=2.50 |        |               | >2.50         |        |                   |                     |             |
| 15   | >2.50 and <=3    |        |               |               | 1      |                   |                     | 2           |
| 16   | >2.50 and <=3    |        |               |               | 2      |                   |                     | 2           |
| 17   | >3               |        |               |               | 1      |                   |                     | 2           |

Table 8. Rule set of Decision Tree for Non Graduates

| Rule | IT Fundamentals | Scholarship | Gender |
|------|-----------------|-------------|--------|
| 1    | >2.50 and <=3   | 1           |        |
| 2    | >3              | 1           |        |
| 3    | >3              | 2           | 2      |

#### Logistic Regression Model in Predicting Test Set

The (Equation 1) derived from the values in the logistic regression model was tested using the testing data. The table below reveals that the performance of the model in the test set was recorded an accuracy result of 82.02.

#### Improving Data Model of Logistic Regression by Combining Rule Set of Decision Tree Algorithm

To improve accuracy rate of the correctly classified of the graduated status the 16 instances (58.62) underwent to three rules sets generated by the decision tree algorithm. After misclassified instances of graduates in the rule sets generated by decision tree algorithm. The result of the rules sets is shown in the table below

Table 9. Rule set of Decision Tree for Non Graduates

|    | Rule1 | Rule2 | Rule3 |
|----|-------|-------|-------|
| 1  | FALSE | FALSE | FALSE |
| 2  | FALSE | TRUE  | FALSE |
| 3  | FALSE | FALSE | FALSE |
| 4  | FALSE | FALSE | FALSE |
| 5  | FALSE | FALSE | FALSE |
| 6  | FALSE | FALSE | FALSE |
| 7  | FALSE | FALSE | FALSE |
| 8  | FALSE | FALSE | FALSE |
| 9  | TRUE  | FALSE | FALSE |
| 10 | FALSE | FALSE | FALSE |
| 11 | FALSE | FALSE | FALSE |
| 12 | FALSE | FALSE | TRUE  |
| 13 | FALSE | FALSE | FALSE |
| 14 | FALSE | FALSE | FALSE |
| 15 | FALSE | FALSE | FALSE |
| 16 | FALSE | FALSE | FALSE |



The table reveals that there were three instances were correctly classified by the rules sets generated by the decision tree model, hence it contributes in the increase of the logistic regression

*Logistic Regression (Equation) + Decision Tree (Rule Set) Accuracy Rate*

| Table 10.<br>Measure of<br>Set | Observed Value |  | Predicted     |           | Percentage Corrected | Performance<br>Logistic + Rule |
|--------------------------------|----------------|--|---------------|-----------|----------------------|--------------------------------|
|                                |                |  | Not Graduated | Graduated |                      |                                |
| Graduate                       | Not Graduated  |  | 98            | 2         | 97.00                |                                |
|                                | Graduated      |  | 13            | 16        | 55.17                |                                |
| Average Percentage             |                |  |               |           | 88.3                 |                                |

The rule sets generated from the decision tree algorithm has classified 3 out of 16 misclassified instances from the logistic regression data model. From 44.82 accuracy rate of the graduated status it becomes 55.17 after combining the prediction of the decision tree rule sets. Table IX. reveals that the after combining the prediction of data model of logistic regression and rule set of decision tree, the accuracy rate of testing sets has increased to 88.3

Finally, the third research question addresses the issue of measuring the perspectives of the end-users with regard the software quality characteristics of the developed prototype consisting of the data models of logistic regression and decision tree algorithm. A questionnaire was circulated to guidance officer and head of the Information Technology Department and predictive analytics expert who validated the results asking them to rate the prototype software. Response for the items was measured using five-point Likert scale.

Table 11. Summary of the Weighted Mean of the Five (4) Criteria for Descriptive and Predictive Analytics' of Student Graduation Prototype

| Likert Scale  |                                 |                 |
|---------------|---------------------------------|-----------------|
| Criteria      | Expert's Response Weighted Mean | Interpretation  |
| Functionality | 4.55                            | Very Acceptable |
| Design        | 4.55                            | Very Acceptable |
| Usability     | 5.00                            | Excellent       |
| Reliability   | 4.6                             | Very Acceptable |
| TOTAL         | 4.69                            | Very Acceptable |

Overall the Descriptive and Predictive Analytics' of Student Graduation Prototype based on the respondents response recorder a mean performance of 4.69 with an interpretation of Very Acceptable.

### Conclusion

The study aimed to develop a framework that can be used as a basis in creating a predictive analytics software prototype for student graduation using decision tree algorithm and logistic regression. This will early identify students who are vulnerable of not being able to graduate on time so proper retention policies can be formulated by the administration

Decision Tree Algorithm has an accuracy rate of 86.77 in predicting student graduation and the overall acceptability of the Descriptive and Predictive Analytics' of Student Graduation Prototype based on the respondents' response recorded an overall mean of 4.69 which has an interpretation of Very Acceptable and concluded that the software can be now used for implementation.





The system has plenty of space for further improvements that future researchers might want to follow through: The continuous study of student graduation rate for new incoming data sets so data it can become voluminous and new patterns can be discovered. The study can be applied to other disciplines or courses. The report generation of the prototype can be improved by having archives of reports every year. Possible algorithm combinations can be applied to test sets of data.

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## **Hemispheric Brain Dominance and Mathematics Performance of Western Visayas College of Science and Technology Students - Phase III**

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### **Abstract**

This study was anchored in the Split Brain or Lateralization Theory of Roger Wolcott Sperry which states that the brain is divided into two hemispheres, the left hemisphere and the right hemisphere. This was conducted to determine the significance of the difference in the mathematics(math) performance of the participants when they were grouped according to their hemispheric dominance (HD) and program. There were 172 first year participants of Western Visayas College of Science and Technology, Iloilo City in phase I (SY 2011-2012). This was reduced to 120 participants in phase II (SY 2012-2013) and to 88 participants in phase III (SY 2013-2014). The participants' HD was determined by the use of a researcher-made 46-item Hemispheric Brain Dominance Test while their mathematics performance was based on their average final grades in their Math classes. The statistical tools used were the mean, standard deviation, Mann-Whitney, Kruskal-Wallis, and Post hoc tests. The test in hypothesis was set at .05 alpha level. Results showed that as an entire group, the left brain was the dominant brain hemisphere among the participants in phases I, II and III. In phase I and II, the participants had "fair" mathematics performance while phase III had "good" mathematics performance. When the participants were grouped according to their hemispheric dominance in phase I, the participants who were right-brain dominant had "conditional" mathematics performance while in phase II and III, they had "fair" mathematics performance. Those which were left-brain dominant in phase I had "fair" mathematics performance while in phase II and III, they had "good" mathematics performance. In phases I, II and III of the study, significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric brain dominance. The left brain dominant participants performed better in their mathematics performance than the right brain dominant participants. In phases I, II and III, significant differences existed in the level of mathematics performance when the participants were grouped according to their program. The Post hoc (Scheffe) test results showed that BS Math significantly differ in their math performance from BSECE and BSMEAE participants. Furthermore, BSECE significantly differ in their math performance from BSEd and BSMEAE participants. Also, BSMEAE significantly differ from BSEE and BSEd participants in their math performance. There is no significant difference in the hemispheric brain dominance of the participants when they were grouped according to the phase of the study. This implies that the hemispheric brain dominance of the participants did not change for the last three years. It is highly recommended to administrators and guidance counselors to assess the brain dominance of the incoming freshmen and give priority to left-brained students for Math-laden courses. More researches should be conducted in different subjects, programs and backgrounds to add support to this study.

**Key words:** Hemispheric Brain Dominance

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## Introduction

The Split Brain or Lateralization Theory of Roger Sperry states that the brain is divided into two hemispheres: the right brain and the left brain. The parietal cortex, the top/middle region of the brain, plays a central role in the so-called numerical cognition—our ability to process numerical information. Previous brain imaging studies have shown that the right parietal region is primarily involved in basic quantity processing while the left parietal region is involved in more precise numerical operations like addition and subtraction, (Park, 2012).

The left side of the brain controls the right side of the body and is responsible for analytical, linear, verbal and rational thought. The left hemisphere deals with hard facts: abstractions, structure, discipline and rules, time sequences, mathematics, categorizing, logic, rationality and deductive reasoning, knowledge, details, definitions, planning and goals, words (written, spoken and heard), productivity and efficiency, science and technology, stability, extraversion, physical activity, and the right side of the body.

Studies have suggested that brain hemisphericity is associated with different occupations and academic majors (Kolb, 1979; McCarthy, 1996). Kolb assumed students choose majors/fields based on congruence between their learning styles and the norms of those majors/fields (1979). By knowing the dominant brain type of a student, the mentor will know most likely if the student would succeed in his chosen field of specialization. This study is based on the premise that left-brain dominant students are most likely to succeed in Mathematics subjects.

The researchers have observed that for the past years, some students who were enrolled in Math-laden programs dropped-out because they failed in their field of specialization or mathematics. Motivated by the need to increase the number of successful graduates with specialization on Math-laden programs, this study was conducted. Phase I of the study was conducted in SY 2011-2012, and Phase II in SY 2012-2013.

## Statement of the Problem and Hypotheses

This study sought to find if there is a significant difference in the mathematics performance of the left-brained and right-brained students enrolled in Math-laden courses at the Western Visayas College of Science and Technology.

Specifically, this study sought to answer the following questions:

1. What is the dominant brain hemisphere among the participants as a whole and when they are grouped according to program in phases I, II and III?
2. What is the level of mathematics performance of the participants as a whole and when they are grouped according to hemispheric dominance and program in phases I, II and III?
3. Is there a significant difference in the mathematics performance of the participants when they are grouped according to their hemispheric brain dominance and program in phases I, II and III?
4. Is there a significant difference in the mathematics performance of the participants when they are grouped according to phase of the study?
5. Is there a significant difference in the hemispheric brain dominance of the participants when they are grouped according to phase of the study?

Based on the foregoing problems, the following hypotheses are advanced:

1. There is no significant difference in the mathematics performance of the participants when they are grouped according to their hemispheric brain dominance and program in phases I, II and III.
2. There is no significant difference in the mathematics performance of the participants when they are grouped according to phase of the study.
3. There is no significant difference in the hemispheric brain dominance of the participants when they are grouped according to phase of the study.



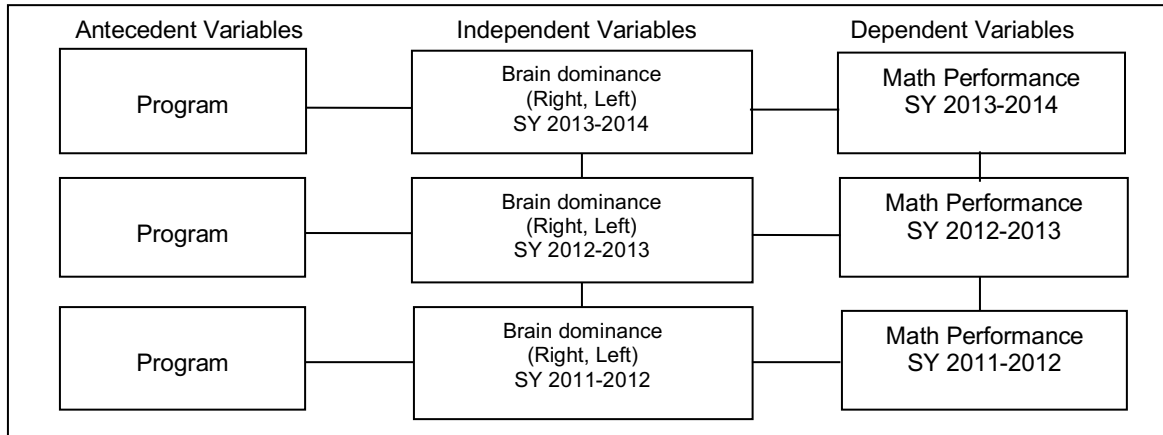


Figure 1 shows the research paradigm of the relationship among variables.

### Research Design and Methodology

This descriptive study aimed to determine the level of mathematics performance among participants when they are grouped according to hemispheric brain dominance and program. It also aimed to compare the results of the study in phases I, II, and III.

### The Participants

In phase I, the participants of the study were 172 college students. These were later reduced to 120 in phase II and to 88 in phase III. They were third year college students from the Bachelor of Science in Mathematics (BSM), Bachelor of Science in Education major in Mathematics (BSEd), Bachelor of Science in Electrical Engineering (BSEE), Bachelor of Science in Electronic and Communication Engineering (BSECE), and Bachelor of Science in Mechanical Engineering major in Automotive Engineering (BSMEAE) of Western Visayas College of Science and Technology (WVCST) in Iloilo City during the school year 2013-2014.

Table 1 shows the comparison of the distribution of participants when they were grouped according to hemispheric dominance and program during the phases I, II and III of the study.

Table 1. *Distribution of Participants According to Hemispheric Dominance and Program*

| Category        | Phase I (SY 2011-2012) |     | Phase II (SY 2012-2013) |     | Phase III (SY 2013-2014) |     |
|-----------------|------------------------|-----|-------------------------|-----|--------------------------|-----|
|                 | F                      | %   | f                       | %   | f                        | %   |
| A. Entire Group | 172                    | 100 | 120                     | 100 | 88                       | 100 |
| B. HD           |                        |     |                         |     |                          |     |
| Left-Brain      | 102                    | 59  | 73                      | 61  | 63                       | 72  |
| Right-Brain     | 70                     | 41  | 47                      | 39  | 25                       | 28  |
| C. Program      |                        |     |                         |     |                          |     |
| BSM             | 29                     | 17  | 21                      | 18  | 20                       | 23  |
| BSEd            | 31                     | 18  | 23                      | 19  | 22                       | 25  |
| BSEE            | 43                     | 25  | 29                      | 24  | 10                       | 11  |
| BSECE           | 48                     | 28  | 35                      | 29  | 26                       | 30  |
| BSMEAE          | 21                     | 12  | 12                      | 10  | 10                       | 11  |

### Data-gathering Instruments

The same data-gathering instrument was used in phase I to III which was the researcher-made 46-item Hemispheric Brain Dominance. The instrument was validated by two experts, a psychiatrist and a psychologist. The test-retest reliability (Pearson Product Moment correlation coefficient) was 0.913.

Each participant was asked to express his/her agreement/disagreement with each statement by answering "Yes" or "No". Before the scoring was done, each statement was classified as either left-brain or right-brain statement.



There were twenty-three (23) left-brain and twenty-three (23) right-brain statements. To identify the brain dominance of the participants, the score was determined.

The high scores on the Hemispheric Brain Dominance Test were associated with a left hemispheric mode while the low scores were associated with a right hemispheric mode.

The scores are interpreted as follows:

| Scale   | Description          |
|---------|----------------------|
| 24 – 46 | Left Brain Dominant  |
| 0 – 23  | Right Brain Dominant |

**Mathematics Performance.** The Mathematics performance was based on the average final grades of the participants in their Mathematics classes. Based on WVCST, Memorandum No. 3/9/2007-14, the grades were interpreted as follows:

| Scale     | Description  |
|-----------|--------------|
| 1.0       | Excellent    |
| 1.1 – 1.5 | Outstanding  |
| 1.6 – 2.0 | Very Good    |
| 2.1 – 2.5 | Good         |
| 2.6 – 3.0 | Fair/Passing |
| 3.1 – 3.5 | Conditional  |
| 3.6 – 5.0 | Failed       |

The data were collected from the participants during the second semester of SY 2013-2014. The participants were asked to complete the Hemispheric Brain Dominance instrument to determine individual's brain hemisphericity. Their grades in mathematics were obtained from the Registrar's Office.

## Results

### *Dominant Brain Hemisphere*

Table 2 shows the number of the left brain and right brain dominant participants when they were grouped according to program. In phase I, as an entire group, there were 70 (40.70%) right brain dominant participants and 102 (59.30%) left brain dominant participants. The dominant brain hemisphere among the participants was the left brain hemisphere. In phase II, as an entire group, there were 47 (39.17%) right brain dominant participants and 73 (60.83%) left brain dominant participants. The dominant brain hemisphere among the participants in phase II was the left brain. In phase III, as an entire group, there were 25 (28.41%) right brain dominant participants and 63 (71.59%) left brain dominant participants. The dominant brain hemisphere among the participants in phases I, II and III was the left brain. The result of the study agrees with the findings of Alvaro (2006) which revealed that there were significantly more left-brained than the combined number of right-brained and confluent-brained college students.

When the participants were grouped according to their program in phase I, the right brain dominant participants consisted of 7 BSM (4.07%), 7 BSEd (4.07%), 24 BSEE (13.95%), 24 BSECE (13.95%), and 8 BSMEAE (4.66%), while the left brain dominant participants consisted of 22 BSM (12.79%), 24 BSEd (13.95%), 19 BSEE (11.05%), 24 BSECE (13.95%), and 13 BSMEAE (7.56%). Hence, when the participants were grouped according to their program, the dominant brain hemisphere was the left brain except for the BSECE where there was an equal number of left-brained and right-brained participants, and BSEE where there was more right-brained than left-brained.

In phase II, the right brain dominant participants consisted of 7 BSM (5.83%), 5 BSEd (4.17%), 15 BSEE (12.5%), 16 BSECE (13.33%), and 4 BSMEAE (3.33%), while the left brain dominant participants consisted of 14 BSM (11.67%), 18 BSEd (15%), 14 BSEE (11.67%), 19 BSECE (15.83%), and 8 BSMEAE (6.67%). Hence, when the



participants were grouped according to their program, the dominant brain hemisphere was the left brain except for the BSEE where the dominant brain hemisphere was the right brain.

In phase III, the right brain dominant participants consisted of 3 BSM (3.41%), 4 BSEd (4.55%), 3 BSEE (3.41%), 10 BSECE (11.36%), and 5 BSMEAE (5.68%), while the left-brain dominant participants consisted of 17 BSM (19.32%), 18 BSEd (20.45%), 7 BSEE (7.95%), 16 BSECE (18.18%), and 5 BSMEAE (5.68%). Therefore, when the participants were grouped according to the program, the dominant brain hemisphere was the left brain except for the BSMEAE where there was an equal number of left- brained and right- brained participants.

Table 2. *Dominant Brain Hemisphere When the Participants Were Grouped According to Program*

| Category        | Phase I |       |      |       | Phase II |       |      |       | Phase III |       |      |       |
|-----------------|---------|-------|------|-------|----------|-------|------|-------|-----------|-------|------|-------|
|                 | Right   |       | Left |       | Right    |       | Left |       | Right     |       | Left |       |
|                 | f       | %     | f    | %     | f        | %     | f    | %     | f         | %     | f    | %     |
| A. Entire Group | 70      | 40.70 | 102  | 59.30 | 47       | 39.17 | 73   | 60.83 | 25        | 28.41 | 63   | 71.59 |
| B. Program      |         |       |      |       |          |       |      |       |           |       |      |       |
| BSM             | 7       | 4.07  | 22   | 12.79 | 7        | 5.83  | 14   | 11.67 | 3         | 3.41  | 17   | 19.32 |
| BSEd            | 7       | 4.07  | 24   | 13.95 | 5        | 4.17  | 18   | 15.00 | 4         | 4.55  | 18   | 20.45 |
| BSEE            | 24      | 13.95 | 19   | 11.05 | 15       | 12.50 | 14   | 11.67 | 3         | 3.41  | 7    | 7.95  |
| BSECE           | 24      | 13.95 | 24   | 13.95 | 16       | 13.33 | 19   | 15.83 | 10        | 11.36 | 16   | 18.18 |
| BSMEAE          | 8       | 4.66  | 13   | 7.56  | 4        | 3.33  | 8    | 6.67  | 5         | 5.68  | 5    | 5.68  |

#### *Level of Mathematics Performance*

To determine the level of mathematics performance of the participants, the mean scores and the standard deviations were obtained.

Table 3 presents the phases I, II and III data on the level of mathematics performance of the participants when they were grouped according to hemispheric dominance and program.

In phase I, the participants as an entire group had “fair” mathematics performance of ( $M = 3.02$ ,  $SD = 0.84$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant participants had “conditional” mathematics performance of ( $M = 3.23$ ,  $SD = 0.72$ ) while those left brain dominant had “fair” mathematics performance of ( $M = 2.87$ ,  $SD = .89$ ). As to the program, both the BSM and the BSEd participants had “good” mathematics performance of ( $M = 2.44$ ,  $SD = 0.87$ ) and ( $M = 2.30$ ,  $SD = 0.42$ ) respectively. The BSEE, BSECE, and BSMEAE participants had “conditional” mathematics performance of ( $M = 3.44$ ,  $SD = 0.70$ ), ( $M = 3.28$ ,  $SD = 0.76$ ), and ( $M = 3.39$ ,  $SD = 0.63$ ) respectively.

In phase II, the participants as an entire group had “fair” mathematics performance of ( $M = 2.65$ ,  $SD = 0.60$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant had “fair” mathematics performance ( $M = 2.85$ ,  $SD = 0.59$ ) while the left brain dominant had “fair” mathematics performance of ( $M = 2.52$ ,  $SD = 0.57$ ). As to program, the BSM participants had “very good” mathematics performance of ( $M = 2.05$ ,  $SD = 0.37$ ) while the BSEd participants had “good” mathematics performance of ( $M = 2.36$ ,  $SD = 0.30$ ). The BSEE, BSECE, and BSMEAE participants had “fair” mathematics performance of ( $M = 2.90$ ,  $SD = 0.56$ ), ( $M = 2.97$ ,  $SD = 0.59$ ), and ( $M = 2.68$ ,  $SD = 0.43$ ) respectively.

In phase III, the participants as an entire group had “good ” mathematics performance of ( $M = 2.38$ ,  $SD = 0.58$ ). When the participants were grouped according to hemispheric dominance, the right brain dominant had “fair” mathematics performance of ( $M = 2.64$ ,  $SD = 0.76$ ) while the left brain dominant had “good” mathematics performance of ( $M = 2.27$ ,  $SD = 0.46$ ). As to program, the BSM had “very good” mathematics performance of ( $M = 1.99$ ,  $SD = 0.31$ ), while the BSEd and BSEE participants had “good” mathematics performance of ( $M = 2.13$ ,  $SD = 0.25$ ) and ( $M = 2.29$ ,  $SD = 0.64$ ) respectively. The BSECE participants had “fair” mathematics performance of ( $M = 2.60$ ,  $SD = 0.43$ ) while the BSMEAE participants had “conditional” mathematics performance of ( $M = 3.20$ ,  $SD = 0.76$ ).

As an entire group, the participants had “fair” mathematics performance both in phases I and II while the participants in phase III had “good” mathematics performance. When the participants were grouped according to





hemispheric dominance, the right brain dominant participants in phase I had “conditional” mathematics performance. The participants in phases II and III had “fair” mathematics performance. However, the left brain dominant participants in phase I had “fair” mathematics performance while in phases II and III, the participants had “good” mathematics performance.

Table 3. *Level of Mathematics Performance when the Participants Were Grouped According to Hemispheric Dominance and Program*

| Category        | Mean | Phase I     |      |      | Phase II    |      |      | Phase III   |      |  |
|-----------------|------|-------------|------|------|-------------|------|------|-------------|------|--|
|                 |      | Description | SD   | Mean | Description | SD   | Mean | Description | SD   |  |
| A. Entire Group | 3.02 | Fair        | 0.84 | 2.65 | Fair        | 0.60 | 2.38 | Good        | 0.58 |  |
| B. HD           |      |             |      |      |             |      |      |             |      |  |
| Right           | 3.23 | Conditional | 0.72 | 2.85 | Fair        | 0.59 | 2.64 | Fair        | 0.76 |  |
| Left            | 2.87 | Fair        | 0.89 | 2.52 | Good        | 0.57 | 2.27 | Good        | 0.46 |  |
| C. Program      |      |             |      |      |             |      |      |             |      |  |
| BSM             | 2.44 | Good        | 0.87 | 2.05 | Very Good   | 0.37 | 1.99 | Very Good   | 0.31 |  |
| BSEd            | 2.30 | Good        | 0.42 | 2.36 | Good        | 0.30 | 2.13 | Good        | 0.25 |  |
| BSEE            | 3.44 | Conditional | 0.70 | 2.90 | Fair        | 0.56 | 2.29 | Good        | 0.64 |  |
| BSECE           | 3.28 | Conditional | 0.76 | 2.97 | Fair        | 0.59 | 2.60 | Fair        | 0.43 |  |
| BSMEAE          | 3.39 | Conditional | 0.63 | 2.68 | Fair        | 0.43 | 3.20 | Conditional | 0.76 |  |

#### *Differences in the Level of Mathematics Performance*

The results of the Mann-Whitney Test, a non-parametric test used to determine the significance of the difference in the level of mathematics performance of the participants are shown in Table 4. In phases I, II and III of the study, significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric dominance of  $z(1) = -3.172$ ,  $p < .05$ ,  $z(1) = -3.001$ ,  $p < .05$ , and  $z(1) = -2.323$ ,  $p < .05$  respectively. The left brain dominant participants performed better in their mathematics performance than the right brain dominant participants. The result of the study supports Alvaro's (2006) study that brain hemispheric orientation of college students significantly explained their level of Mathematics performance. Wheatle et. al. (1978) suggests the emergence of concrete-operational thought as the left hemisphere becomes capable of processing logical tasks. This showed that diversity in the brain hemispheric orientation of the college students significantly explained the level of Mathematics performance. Yeap Lay Leng and Low Guat Tin (2002) in Alvaro (2006) concluded that the right-brained students have greater risk for poor academic performance.

Table 4. *Mann-Whitney Test of Mathematics Performance When the Participants Were Grouped According to their Hemispheric Dominance*

| Category | Phase I   |         |    |              | Phase II  |         |    |              | Phase III |         |    |              |
|----------|-----------|---------|----|--------------|-----------|---------|----|--------------|-----------|---------|----|--------------|
|          | Mean Rank | z-value | df | Sig 2-tailed | Mean Rank | z-value | df | Sig 2-tailed | Mean Rank | z-value | df | Sig 2-tailed |
| HD       |           |         |    |              |           |         |    |              |           |         |    |              |
| Right    | 100.92    | -3.172  | 1  | 0.002*       | 72.36     | -3.001  | 1  | 0.003*       | 54.54     | -2.323  | 1  | 0.020*       |
| Left     | 6.60      |         |    |              | 52.86     |         |    |              | 40.52     |         |    |              |

\*  $p < .05$ , significant

Table 5 shows the results of the Kruskal-Wallis test, a non-parametric test used to determine the significance of the difference in the level of mathematics performance of the participants when they were grouped according to program. In phases I, II and III, significant differences existed in the level of mathematics performance when the participants were grouped according to their program of  $z(4) = 67.644$ ,  $p < .05$ ,  $z(4) = 47.802$ ,  $p < .05$ , and  $z(4) = 41.392$ ,  $p < .05$ , respectively. The result of the present study supports the studies of Go & Camariosa, (2013); Kolb, (1979); and McCarthy, (1996) which suggested that brain hemisphericity is associated with different academic majors.

Table 5. *Kruskal-Wallis Test of Mathematics Performance When the Participants Were Grouped According to Program*



| Category | Phase I   |            |    |        | Phase II  |            |    |        | Phase III |            |    |        |
|----------|-----------|------------|----|--------|-----------|------------|----|--------|-----------|------------|----|--------|
|          | Mean Rank | Chi-Square | df | Sig    | Mean Rank | Chi-Square | df | Sig    | Mean Rank | Chi-Square | df | Sig    |
| Program  |           |            |    |        |           |            |    |        |           |            |    |        |
| BSM      | 52.52     | 67.644     | 4  | 0.000* | 24.05     | 47.802     | 4  | 0.000* | 24.43     | 41.392     | 4  | 0.000* |
| BSEd     | 39.26     |            |    |        | 40.43     |            |    |        | 31.39     |            |    |        |
| BSEE     | 116.26    |            |    |        | 77.41     |            |    |        | 45.85     |            |    |        |
| BSECE    | 98.16     |            |    |        | 78.41     |            |    |        | 58.21     |            |    |        |
| BSMEAE   | 115.60    |            |    |        | 69.50     |            |    |        | 76.50     |            |    |        |

\*  $p < .05$ , significant

In Table 6, the results of the Scheffe post hoc test show that BSM participants significantly differed in their math performance from BSECE and BSMEAE participants. Furthermore, BSECE significantly differed in their math performance from BSEd and BSMEAE participants. Also, BSMEAE participants significantly differed from BSEE and BSEd participants in their math performance.

Table 6. *Post Hoc (Scheffe) Test of the Math Performance of the Participants When Grouped According to Program*

|       | Category | Mean Difference | Std Error | Significance |
|-------|----------|-----------------|-----------|--------------|
| BSM   | BSECE    | -0.6046(*)      | 0.13328   | 0.001*       |
|       | BSEE     | -0.2955         | 0.17356   | 0.578        |
|       | BSED     | -0.1397         | 0.13845   | 0.906        |
|       | BSMEAE   | -1.2075(*)      | 0.17356   | 0.000*       |
| BSECE | BSEE     | -0.3091         | 0.16675   | 0.492        |
|       | BSED     | 0.4649(*)       | 0.12981   | 0.017*       |
|       | BSMEAE   | -0.6029(*)      | 0.16675   | 0.015*       |
| BSEE  | BSED     | 0.1558          | 0.17091   | 0.933        |
|       | BSMEAE   | -0.9120(*)      | 0.20041   | 0.001*       |
| BSED  | BSMEAE   | -1.0678(*)      | 0.17091   | 0.000*       |

\* The mean difference is significant at the .05 level.

Table 7 shows the results of the Kruskal-Wallis test, a non-parametric test used to determine the significance of the difference in the level of mathematics performance of the participants when they were grouped according to each phase of the study. There is a significant difference in the level of mathematics performance of the participants when they were grouped according to each phase of the study,  $X^2(2) = 41.047$ ,  $p < .05$ .

Table 7. *Kruskal-Wallis Test of the Mathematics Performance of the Participants in Phases I, II and III*

| Category           | Mean Rank | Chi-Square | df | Significance<br>2-tailed |
|--------------------|-----------|------------|----|--------------------------|
| Phase              |           |            |    |                          |
| I (SY 2011-2012)   | 225.40    | 41.047     | 2  | 0.000*                   |
| II (SY 2012-2013)  | 181.43    |            |    |                          |
| III (SY 2013-2014) | 134.67    |            |    |                          |

$p < .05$ , significant

Table 8 shows the Post hoc (Scheffe) test results that mathematics performance of the participants in phase I significantly differed in their mathematics performance in phase II, and phase III. Similarly, the mathematics performance of the participants in phase II significantly differed in their mathematics performance in phase III. This implies that the level of mathematics performance of the participants had improved from phase I to phase III.

Table 8. *Post Hoc (Scheffe) Test of the Math Performance of the Participants When Grouped According to Phases of the Study*

| Category | Mean Difference | Std Error | Significance |
|----------|-----------------|-----------|--------------|
|----------|-----------------|-----------|--------------|



|          |           |           |         |        |
|----------|-----------|-----------|---------|--------|
| Phase I  | Phase II  | 0.3702(*) | 0.08317 | 0.000* |
|          | Phase III | 0.7213(*) | 0.09384 | 0.000* |
| Phase II | Phase III | 0.3511(*) | 0.10018 | 0.001* |

\* The mean difference is significant at the .05 level.

Table 9 presents the results of the Kruskal-Wallis Test, a non-parametric test used to determine the significance of the difference in the hemispheric brain dominance of the participants when they were grouped according to the phase of the study. There is no significant difference in the hemispheric brain dominance of the participants when they were grouped according to the phase of the study,  $X^2(2) = 5.333$ ,  $p > .05$ . This implies that the hemispheric brain dominance of the participants did not change significantly for the last three years. The result supports the study of Nielsen et al. which states that lateralized brain networks appear to show local correlation across subjects with only weak changes from childhood into early adulthood.

Table 9. *Kruskal-Wallis Test of the Hemispheric Dominance of the Participants in Phases I, II and III*

| Category                 | Mean Rank | Chi-Square | df | Significance<br>2-tailed |
|--------------------------|-----------|------------|----|--------------------------|
| Phase                    |           |            |    |                          |
| I (SY 2011-2012)         | 183.67    | 5.333      | 2  | .070                     |
| II (SY 2012-2013)        | 182.97    |            |    |                          |
| III (SY 2013-2014)       | 214.11    |            |    |                          |
| p > .05, not significant |           |            |    |                          |

### Findings, Conclusions and Implications

1. As an entire group, the left brain was the dominant brain hemisphere among the participants from phase I to III. In phase I, when the participants were grouped according to program, BSM, BSEd and BSMEAE were left brain dominant while the BSEE participants were right brain dominant. The BSECE had equal number of left-brained and right-brained participants. In phase II, the dominant brain hemisphere was the left brain except for the BSEE where the dominant brain hemisphere was the right brain. In phase III, the dominant brain hemisphere was the left brain except for the BSMEAE where there was an equal number of left-brained and right-brained participants. The results of the present study agree with the findings of Fernandez (2011) that whether taken as an entire group or classified according to gender and I.Q., the dominant brain hemisphericity of the students was the left brain.

2. As an entire group, the participants in phase I and II had "fair" mathematics performance while in phase III had "good" mathematics performance. When the participants who were right brain dominant were grouped according to mathematics performance, in phase I they had "conditional" mathematics performance while in phase II and III had "fair" mathematics performance. Those who were left brain dominant had "fair" mathematics performance in phase I, and "good" mathematics performance in phase II and III.

3. In phase I, II and III of the study, significant differences existed in the level of mathematics performance when the participants were grouped according to their hemispheric brain dominance. The left brain dominant participants performed better in their mathematics performance than the right brain dominant participants. There was a significant decrease in the enrolment of the participants who were "right-brained" for the reason that they shifted to other courses or transferred to other schools.

4. In phases I, II and III, significant differences existed in the level of mathematics performance when the participants were grouped according to their program.

5. There is no significant difference in the hemispheric brain dominance of the participants when they were grouped according to the phases of the study. This implies that the hemispheric brain dominance of the participants did not change for the last three years.

### Recommendations

Follow up studies using the results as a baseline data and similar group of participants may be utilized to establish strong validity of the relationship of hemispheric dominance to mathematics performance and to



determine if there will be a shift in students' brain dominance. The findings can serve to help administrators and guidance counselors in WVCST or other colleges and universities to give the students some insights into career choices. These insights, if acted upon, can help decrease the number of students dropping out of college or changing courses because of the lack of fitness between their cognitive styles and the requirements of certain fields.

It is highly recommended to Administrators and Guidance Counselors to assess the brain dominance of the incoming freshmen and give priority to left-brained students for Math-laden courses. More researches in different subjects and courses and backgrounds that will add support to this study should be conducted.

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## **School Bullying Climate in Lorma Colleges Special Science High School**

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### **Abstract**

Bullying is a common issue that everyone knows. But in reality, people can hardly tell whether it is really an act of bullying or if it is just a joke. So sometimes, they can't report it to the higher people of the society. Over the past years, there has been cases of bullying, especially the students. It was hard to ignore that they even proposed a law about anti-bullying. In order to contribute to the school's knowledge about bullying and the students, this study was conducted to determine the School Bullying Climate in Lorma Colleges Special Science High School. Two theories were used for the framework of this study, namely the Operant Conditioning theory and the Ecological System Theory. The Operant Conditioning Theory explained the changing of behavior by the use of reinforcement which is given after the desired response while the Ecological System Theory helped us understand why we may behave differently when we compare our behavior in the presence of our family and our behavior when we are in school or at work. A descriptive research method was used for this study. A survey was conducted among 108 students of Lorma Colleges Special Science High School with the aim of knowing the perspectives of students as to school bullying in LCSSHS and the existing & possible solutions about school bullying in LCSSHS. Data were obtained from the students through the use of questionnaires. The study was conducted for the teachers, students, parents and the school. The researchers concluded that a class with a different kind of academic training and discipline may view bullying in a different way than that of another class and when students encounter or see a bullying incident, they cannot help but just watch, although they will bear in mind that the next time they see one again, they will surely stop it. The researchers also provided recommendation for the future researchers and for the students.

Keywords: bullying, climate, high school, academic

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## Introduction

Bullying is defined in many ways and according to Rigby (1998), Bullying involves an initial desire to hurt, if this desire is expressed in action, someone is hurt; the action is directed by a more powerful person or group; it is without justification; it is typically repeated; and it is done so with evident enjoyment.

As we all know, there are also different kinds of bullying. Some of which are peer-to-peer bullying, gender-based discrimination, physical assault, psychological punishment, public ridicule, and sexual harassment.

Bullying Statistics (2013) stated that school bullying refers to all types of bullying done on school property, whether it is peer-to-peer bullying, bullying of younger children by older children, or bullying in which a teacher is either a victim or a culprit.

From the time the students attend their first day of school, they already experience bullying, have witnessed one or they themselves bully other students. They begin to have the mindset that they need to be higher in status or power to someone else even at a young age. They usually bully when there are no authorities around to see the event.

According to Hymel and Swearer (2009), bullying is characterized by a power difference; an unfair fight where the child who bullies has some advantage or power over the child who is victimized. Bullying is not the same as "playing around," it is about the abuse of power. Youth nowadays are easily influenced by the things they see in television, internet or even by the people around them. They don't get the proper reprimanding, that's why to them everything they do is a joke resulting to them having a hard time differentiating bullying and a joke. They don't know that while they are laughing at someone, that someone might get hurt and feel conscious about themselves.

Bullying can also happen everywhere and every time without everyone's knowledge. The American Educational Research Association (2013), stated that the epicenter for bullying is schools, colleges, and universities, where vast numbers of children, youth, and young adults spend much of their time.

Flores (The Philippine Star, 2014) reported that the Department of Education (DepEd) documented more than 1,700 cases of child abuse and bullying in school year 2013-2014 after Republic Act 10627, the Anti-Bullying Act, was passed last year. However, the DepEd said 60 percent of these cases have already been resolved. "Bullying and other forms of violence in schools should be viewed not just a school problem but as societal problem as well," he said. According to the National Center for Education Statistics, nearly a third of all students aged 12-18 reported having been bullied at school in 2007, some almost daily.

Every student is now aware of bullying in school. School officials are now starting to warn students about bullying since bullying can end someone's life if it is not settled. According to DZRH News (2013), whether it's physical, verbal or cyber bullying, schools should have their own policies and punishment for those who commit such acts. Bullies will face sanctions and will undergo rehabilitation monitored by the school. (Acey Gutierrez). It also states that one of the primary causes of suicide is bullying. Unfortunately, the number of suicidal attempts and those who commit suicide has increased over the years. So when a student is bullied, education may falter or decrease. Students may start skipping classes or worse, quit school for they are either traumatized or scared because of bullying and they are too afraid of their bullies.

This study was conducted because as a student ourselves, we want to make sure that the students' grades won't be affected because of their fear. We want to be of help to them especially when they are having problems, specifically emotional problems. With the use of the gained knowledge in conducting this research, teachers, parents, and even students can join hands and make a concrete solution or plan in lessening the bullying cases in Lorma Colleges Special Science High School.





### Statement Of The Problem

The study aimed to determine the School Bullying Climate in Lorma Colleges Special Science High School for the S.Y. 2014 – 2015.

Specifically, it aimed to answer the following questions:

1. What are the perceptions of the male and female students in Lorma Colleges Special Science High School?
2. What are the existing solutions about school bullying in Lorma Colleges Special Science High School?
3. What are the possible solutions about school bullying in Lorma Special Science High School?

### Methodology

A descriptive research method was used for this study entitled School Bullying Climate in Lorma Colleges Special Science High School. Questionnaires are used to gather information about the School Bullying Climate in Lorma Colleges Special Science High School.

### Population of the Study

108 students were asked to answer the questionnaires that were floated. Students of Lorma Colleges Special Science High School from Grade 7 to 4th Year High School were given the questionnaires. This study was conducted in Lorma Colleges Special Science High School, Urbiztondo, San Juan, La Union.

### Data Gathering Tool

A questionnaire was provided to the respondent to gather the needed data in this study. The questionnaire used is a standardized test formulated by Dewey Cornell. The questionnaires consists of 60 questions that deal with the perception of the students about the bullying climate of Lorma Colleges Special Science High School together with their class and academic performance.

### Data Gathering Procedure

Permission to hand out the questionnaire was presented to the school principal. The questionnaires were then handed out to the students of Lorma Colleges Special Science High School. A total of 108 were asked to answer the questionnaires. After gathering all the questionnaires, an analysis of data was executed.

### Treatment of the Data

The data was gathered and was interpreted using the ranking method with simple analysis.

To answer the specific problems, the weighted mean was used to determine the average value given by

| Point Value | Scale     | Descriptive Equivalent |
|-------------|-----------|------------------------|
| 4           | 3.5 – 4.4 | Strongly Agree         |
| 3           | 2.5 – 3.4 | Agree                  |
| 2           | 1.5 – 2.4 | Disagree               |
| 1           | 0.5 – 1.4 | Strongly Disagree      |

### Results and Discussion

| Q | Strongly Disagree (%) | Disagree | Agree | Strongly Agree (&) |
|---|-----------------------|----------|-------|--------------------|
| 1 | 0                     | 0        | 58.33 | 41.67              |
| 2 | 1.85                  | 0        | 46.30 | 51.85              |
| 3 | 0                     | 7.41     | 60.19 | 32.40              |
| 4 | 0.93                  | 15.74    | 66.67 | 16.66              |
| 5 | 0                     | 0.92     | 46.30 | 52.77              |
| 6 | 1.85                  | 3.70     | 30.56 | 63.89              |

Most students said that they like going to school and they are so proud of being a student in this school. This means that they are not scared of going to their school because they feel safe since they think that there is no bullying incident going on inside the school. According to Seeley; et. al. (2011), when schools provide a safe learning environment in which adults model positive behavior, they can mitigate the negative effects of bullying.



Which means the school could lessen the negative effect of bullying to students if they'll make them feel safe inside the school.

| Q# | Strongly Disagree (%) | Disagree (%) | Agree (%) | Strongly Agree (%) |
|----|-----------------------|--------------|-----------|--------------------|
| 7  | 0.93                  | 12.03        | 62.04     | 25                 |
| 8  | 0.93                  | 15.74        | 59.26     | 24.07              |
| 9  | 2.78                  | 11.11        | 64.81     | 21.30              |
| 10 | 22.22                 | 30.56        | 37.96     | 8.26               |
| 11 | 0                     | 5.56         | 70.37     | 9.26               |
| 12 | 7.41                  | 9.26         | 58.33     | 25                 |
| 13 | 3.70                  | 47.22        | 34.26     | 14.82              |

Table 1.2 *Student's attitude about the school rules and equality*

Students think that the school rules of LCSSHS are fair and they punish students equally. This means even the superior ones in terms of status and authority are still punished because of the fair rules of the school.

| Q# | Strongly Disagree(%) | Disagree(%) | Agree(%) | Strongly Agree(%) |
|----|----------------------|-------------|----------|-------------------|
| 14 | 2.78                 | 11.11       | 62.04    | 24.07             |
| 15 | 0.93                 | 4.63        | 53.70    | 40.74             |
| 16 | 3.70                 | 9.26        | 57.41    | 20.63             |
| 17 | 0.93                 | 4.63        | 62.03    | 32.41             |

Table 1.3 *Behavior of teacher and adults towards students*

All the highest percentage in Table 1.3 falls under agree which means all the students feel safe inside the school because teachers and adults take care of the students well. According to Blum (2005), school connection is the belief by students that adults in the school care about their learning and about them as individuals. Students are more likely to succeed when they feel connected to school. Which means, if the adults inside the school will care about the students, they will feel connected to school and they will feel more safe because they know that someone cares for them

| Q# | Strongly Disagree (%) | Disagree (%) | Agree (%) | Strongly Agree (%) |
|----|-----------------------|--------------|-----------|--------------------|
| 18 | 9.26                  | 21.29        | 50.93     | 18.52              |
| 19 | 4.63                  | 11.11        | 62.04     | 22.22              |
| 20 | 2.78                  | 19.41        | 59.56     | 18.52              |
| 21 | 0.93                  | 10.19        | 59.26     | 29.62              |
| 22 | 5.56                  | 11.11        | 51.85     | 31.48              |
| 23 | 3.70                  | 8.33         | 25.93     | 62.04              |
| 24 | 0.93                  | 12.96        | 58.33     | 27.78              |

Table 1.4 *Behavior of students towards teachers and adults*

The table shows that students can freely talk to their teachers and other adults. They find them approachable where they say their problems and the students also feel comfortable with the adults inside the school while 58.33% of the respondents say that they feel safe in this school.

| Q# | Strongly Disagree (%) | Disagree (%) | Agree (%) | Strongly Agree (%) |
|----|-----------------------|--------------|-----------|--------------------|
| 25 | 0.93                  | 2.78         | 65.74     | 30.55              |
| 26 | 0                     | 2.78         | 60.19     | 37.03              |
| 27 | 1.85                  | 14.82        | 61.11     | 22.22              |
| 28 | 0                     | 8.33         | 51.85     | 39.82              |
| 29 | 17.67                 | 45.37        | 22.22     | 15.01              |
| 30 | 0                     | 6.48         | 53.70     | 39.82              |

Table 1.5 *Student's perception about teacher's expectation on them*

In the table shown above, it says that most teachers have high expectations on their students. "These teachers believed that everyone could achieve excellence or that everyone had the ability to think and that, with hard work, all students could experience success. Teachers of influence were always willing to help a student improve and



experience success.” (Cotnoir et. al., 2014) This means if teachers have high expectations on their students, it can make the student strive for more and become successful.

| Q# | Strongly Disagree (%) | Disagree (%) | Agree (%) | Strongly Agree (%) |
|----|-----------------------|--------------|-----------|--------------------|
| 31 | 5.56                  | 28.70        | 41.67     | 24.07              |
| 32 | 8.34                  | 28.70        | 44.44     | 18.52              |
| 33 | 4.63                  | 34.26        | 39.81     | 21.30              |
| 34 | 1.85                  | 20.37        | 47.22     | 30.56              |
| 35 | 4.63                  | 31.48        | 46.30     | 17.59              |
| 36 | 0                     | 6.48         | 46.30     | 47.22              |

Table 1.6 Knowledge of students about bullying in LCSSHS

According to the table, students of Lorma Colleges Special Science High School are aware that there is bullying in their school. In question number 34, 47.22% agrees that bullying is a problem at their school. It also says that students bully about their physical appearance, race and those sexual topics.

| Q# | I ignored it (%) | I laughed along with others who saw it (%) | I did something to try to stop it when it was happening (%) | I did nothing at the time, but tried to stop it from happening again (%) |
|----|------------------|--------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------|
| 37 | 19.44            | 5.56                                       | 36.11                                                       | 38.89                                                                    |

Table 1.7 Response of students towards bullying

The table above talks about the response of the students when they saw someone getting bullied. 36.11 % said that they did try to stop it while 38.89% said that they did nothing at that time but they tried to stop others. Bullies sometimes bully because others stand by and do nothing (Barone, 1997 as cited by Gent) Bullies continue to bully because no one stops them. And sometimes, students are also afraid to stop the bullies since they might get bullied too.

| Mean | F-value | F-crit | Decision          | Remarks                         |
|------|---------|--------|-------------------|---------------------------------|
| 2.51 | 3.93    | 3.053  | Reject hypothesis | There is significant difference |
| 2.98 |         |        |                   |                                 |
| 3.03 |         |        |                   |                                 |

Table 2. Responses of Grade 7 sections

Post hoc analysis

p-values for pairwise t-test

|         |       | Group 1 | Group 2 | Group 3 |
|---------|-------|---------|---------|---------|
|         |       | 2.548   | 2.599   | 2.955   |
| Group 1 | 2.548 |         |         |         |
| Group 2 | 2.599 | .7490   |         |         |
| Group 3 | 2.955 | .0110   | .0258   |         |

Table 2.2

We could see in the tables above that there is a significant difference between the homogeneous section and the heterogeneous sections of the Grade 7 level in Lorma Colleges Special Science High School. The environment or the people around the students can also affect their perceptive about school bullying.

Research supports the idea that student adoption of behaviors based on democratic beliefs (e.g., fairness) happens at the classroom and building level, as teachers use language central to understanding the importance of democratic citizenship in their students' daily lives. Parker (as cited by Pryor, 1996) writes that students “ . . . learn about a democratic society in the place in which they live and work”. It can be said that the students' perception of the school bullying in Lorma Colleges Special Science High School may vary depending on the type of classroom they are in. The response of Group 1, which is a homogenous class, is different to the two groups



which are both heterogeneous classes A homogenous class, with strict discipline and academic training, can experience or see bullying in a way that may be different to those who belong to the heterogonous class.

| Mean | F-value | F-crit | Decision          | Remarks                            |
|------|---------|--------|-------------------|------------------------------------|
| 2.58 | 0.04    | 3.05   | Accept hypothesis | There is no significant difference |
| 2.57 |         |        |                   |                                    |
| 2.60 |         |        |                   |                                    |

Table 2.2 Responses of Grade 8 sections

Looking at the table above, there is a no significant difference between the homogeneous section and the heterogeneous sections of the Grade 8 level in Lorma Colleges Special Science High School. Students in a homogeneous class differ from the students in a heterogeneous class in many ways which includes the students' intellectuality. After floating questionnaires, we found out that there is no significant difference between the perceptions of the students from the sections of the grade 8 level which shows that the grade 8 students don't really differ in perceptions when it comes to school bullying, whether they are from a homogeneous class or from a heterogeneous class. For this year level, their class status doesn't define their perceptions as to the school bullying climate in Lorma Colleges Special science High School.

| Mean | F-value | F-crit | Decision          | Remarks                         |
|------|---------|--------|-------------------|---------------------------------|
| 2.51 | 12.41   | 3.05   | Reject hypothesis | There is significant difference |
| 2.98 |         |        |                   |                                 |
| 3.03 |         |        |                   |                                 |

Table 3.1 Responses of Grade 9 sections

#### Post hoc analysis

p-values for pairwise t-test

|         |      | Group 1  | Group 2 | Group 3 |
|---------|------|----------|---------|---------|
|         |      | 2.51     | 2.98    | 3.03    |
| Group 1 | 2.51 |          |         |         |
| Group 2 | 2.98 | .0001    |         |         |
| Group 3 | 3.03 | 1.26E-05 | .6772   |         |

Table 3.2

The tables above shows that there is a big significant difference between the homogeneous section and the heterogeneous sections of the Grade 9 level in Lorma Colleges Special Science High School. Group 1 which is the homogeneous class makes a difference with the two other groups which is the heterogeneous class.

According to Echelbarger; et. al. (1999), Student behaviors appeared to have interfered with academic achievement, peer relationships and adult interaction. Developing essential social skills increased the academic achievement and enhanced relationships between students. Which means the homogeneous class feels safer because of the good relationship between peers in their classroom and the enough knowledge of the students regarding bullying. They concentrate on their academic performances which make them prone to bullying.

#### Conclusion

Based on the findings, the following were derived:

A class with a different kind of academic training and discipline may view bullying in a different way than that of a another class.

When students encounter or see a bullying incident, they cannot help but just watch, although they will bear in mind that the next time they see one again, they will surely stop it.

#### Recommendation

For the betterment of this study, the researchers recommend that:

1. The study must be studied well to improve and widen the knowledge of the students about bullying in school;
2. The school should held a counseling session at least once a month;



3. Students of the school should be oriented about the effects and signs of bullying, and what to do when encountering a bullying incident.

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## Factors That Motivate Teachers to Work in School

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### Abstract

Teachers play a crucial role in the society. They serve as important workforce in every community. They can dramatically impact the degree and quality of learning of the students. Considering the significant functions they perform worldwide, factors that influenced their job satisfaction was explored in this research.

This study involves 75 teachers, ages 20 to 55 years old from School of Saint Anthony in Lagro, Quezon City. The researchers examined the factors that motivate teachers to work in school. Another purpose of this study is to analyse how to improve the job satisfaction of teachers.

The result of the survey revealed that the factors that can motivate and influence the teachers in their job satisfaction are working with the students, colleagues, good working environment, fringe benefits and salary.

The findings of this research study support the view of Abraham Maslow's Hierarchy of Needs and Frederick Herzberg's Two Factor Theory. The findings revealed that external rewards like the salary and working environment are not the main motivating factors for teachers to work in school. Rather, the result suggests that teachers are intrinsically motivated. Their job satisfaction came from realizing the higher level of psychological needs such as the nature of the work itself, responsibility, achievement, recognition and advancement.

Key words: School of Saint Anthony, Motivate Teachers, Job Satisfaction

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## Introduction

Human resource is one of the most important assets in any corporate success. All organizations use human capital in the realization of their goals. Firms invest in employee development. But if truth be told, employee turnover is a major concern of most companies.

Private schools are not spared from this dilemma. It has been a challenge for most private schools to hire and retain highly efficient teachers. Teachers have a very crucial role in our society. They are an important workforce in every community. They can dramatically impact the degree and quality of learning of the students. Educational advancement cannot be attained if the teachers are greatly dissatisfied with their jobs (Obineli, 2013). Since teachers have a significant part in our community development and are expected to render an excellent job performance for this matter, factors that influence their job satisfaction should be established.

## Research Questions

The study aims to find answers to the following research questions:

- What makes teachers happy with their job?
- How do the factors that motivate teachers to work vary when grouped according to age, civil status, department and length of teaching experience?
- What are the factors that influence the teachers to leave their workplace?
- How can the job satisfaction of the teachers be improved?

## Methodology

### *Participants of the Study*

The researchers used the *descriptive research design* and *purposive sampling technique*. The teachers were chosen deliberately by the researchers because they can best answer the researchers' questions and point of interest (teacher's motivation to work).

All 107 teachers of the School of Saint Anthony in Lagro, Quezon City were invited to participate voluntarily in this study but only 75 of them consent to do so. As a result, the entire sampling population of this study consists of 75 teachers, 37 from the Upper School Department (Grade 7 to 4<sup>th</sup> Year) and 38 from the Elementary Department (Pre-school to Grade 6). These 75 participants were assured that their identity will be held in utmost confidentiality.

Among the 75 participants, 42 are single and 33 are married. The number of their teaching experience also varies. Majority of them are beginning teachers. Thirty-six of them have been teaching for 1-5 years. There are also a handful of experienced teachers. Nineteen (19) have been teaching for 6-10 years and eight (8) have been teaching for 11-15 years. The remaining few are the veteran teachers, six (6) have been teaching for 16-25 years and the remaining six (6) have been teaching for 26-30 years.

### *Research Instruments and Data Gathering Procedure*

The preliminary survey form made by the researchers was inspected by the CL/GMRC Coordinator, Asst. Directress and Human Resource Department Director before it was administered to the 75 teachers who participated in this study. In the survey, they were asked to list 5 factors that can motivate them to work in school. To determine the demographic makeup of the teachers, the researchers requested the participants to write their age, sex, civil status, length of teaching experience and the number of years in service in the School of Saint Anthony in the survey form.

The researchers tallied their responses. The survey form was modified based on the data gathered from the participants during the preliminary survey. The responses were grouped into seven categories namely pupils, job significance, relationship, salary, benefits, environment and recognition.

After the modifications were made, the survey form was administered to the respondents. This time they were asked to rank the categories based on its importance. After doing so, they were instructed to choose which among the subcategories motivates them the most.



Afterwards, the participants were asked to list five possible reasons why teachers leave their work place.

## Results and Discussion

This part is primarily concerned with the presentation of data gathered from 75 respondents. It provides the answer to the questions raised in the first part of the paper.

*Research Question 1: What makes teachers happy? What motivates them to work?*

When the 75 teachers from School of Saint Anthony were asked what makes them happy or what motivates them the most in doing their work, the researchers found out that indeed teachers are teachers because they love teaching.

As projected in Table 1, 29% of the respondents are motivated to work in school because they find their job meaningful, 28% said they are happy because of their pupils and 24% of them revealed salary as their number one motivating factor.

Table 1. *Percentage Data of the Top 1 Motivating Factors of Teachers to Work in School*

| Categories       | Frequency | Percentage |
|------------------|-----------|------------|
| Pupils           | 21        | 28%        |
| Job Significance | 22        | 29%        |
| Relationship     | 5         | 7%         |
| Environment      | 3         | 4%         |
| Recognition      | 3         | 4%         |
| Salary           | 18        | 24%        |
| Benefits         | 3         | 4%         |
| TOTAL            | 75        | 100%       |

The findings support the *Job Characteristics Model of Hackman and Oldham* which explains that job satisfaction occurs when the work environment encourages intrinsically motivating characteristics like skill variety, task identity, task significance, autonomy and knowledge of outcome.

The results confirm the Two Factor Theory of Frederick Herzberg. According to this theory, job enrichments are important for intrinsic motivation. The job should give challenge to the employees to maximize their full potentials.

These findings also support the view of Abraham Maslow's *Hierarchy of Needs*. It explains that there are human needs that should be attained first like the physiological and safety needs before one can move in the attainment of more complex needs such as belonging, esteem and self-actualization. In this case, financial compensation and job security of the teachers can help in satisfying their physiological needs.

*Research Question 2: How do the factors that motivate teachers to work vary when grouped according to length of teaching experience, age, civil status and department?*

Table 2 revealed that, students and job significance serves as the number 1 factor that can motivate the respondents except for those who spend 6-10 years in the teaching profession. Majority of teachers who spend 6-10 years in the teaching profession said that salary is what motivates them the most.

Table 2. *According to Number of Years in Teaching*

| Categories       | 1-5 yrs. |     | 6-10 yrs. |     | 11-15 yrs. |     | 16-20 yrs. |     | 21-25 yrs. |      | 26-30 yrs. |     |
|------------------|----------|-----|-----------|-----|------------|-----|------------|-----|------------|------|------------|-----|
|                  | F        | P   | F         | P   | F          | P   | F          | P   | F          | P    | F          | P   |
| Pupils           | 11       | 30% | 5         | 26% | 3          | 39% | 1          | 20% |            |      | 2          | 32% |
| Job Significance | 9        | 25% | 5         | 26% | 3          | 39% | 2          | 40% | 3          | 100% | 1          | 17% |
| Relationship     | 3        | 8%  |           |     |            |     | 1          | 20% |            |      | 1          | 17% |
| Environment      | 1        | 3%  | 2         | 11% |            |     |            |     |            |      |            |     |
| Recognition      | 2        | 6%  | 1         | 6%  |            |     |            |     |            |      |            |     |
| Salary           | 9        | 25% | 6         | 31% | 1          | 11% |            |     |            |      | 1          | 17% |



|          |    |      |    |      |   |      |   |      |   |      |   |      |
|----------|----|------|----|------|---|------|---|------|---|------|---|------|
| Benefits | 1  | 3%   |    |      | 1 | 11%  | 1 | 20%  |   |      | 1 | 17%  |
| TOTAL    | 36 | 100% | 19 | 100% | 8 | 100% | 5 | 100% | 3 | 100% | 6 | 100% |

Additionally, the researchers grouped the respondents according to age to find out if there are differences with the factors that motivate them to work. Table 4 revealed that pupils, job significance and salary are still the top 3 motivating factors among the teachers regardless of their age. It was noted that majority of teachers ages 20-29 chose salary as the number one factor that motivates them to work. But it was observed in the Table 3 that salary is higher only by 1 point than the other two categories that were previously mentioned. Based on the information that they have given during the informal interview, some of these teachers are the people who earn money to support their family. Pupils and job significance ranked second in their list at both 26%.

Table 3. According to Age

| Categories       | 20-29 yrs. old |      | 30-39 yrs. old |      | 40-49 yrs. old |      | 50-59 yrs. old |      |
|------------------|----------------|------|----------------|------|----------------|------|----------------|------|
|                  | F              | P    | F              | P    | F              | P    | F              | P    |
| Pupils           | 11             | 26%  | 7              | 35%  | 1              | 17%  | 1              | 20%  |
| Job Significance | 11             | 26%  | 5              | 24%  | 3              | 50%  | 2              | 40%  |
| Relationship     | 3              | 8%   | 2              | 9%   |                |      | 1              | 20%  |
| Environment      | 1              | 2%   | 2              | 9%   |                |      |                |      |
| Recognition      | 3              | 8%   |                |      |                |      |                |      |
| Salary           | 12             | 28%  | 4              | 19%  | 2              | 29%  |                |      |
| Benefits         | 1              | 2%   | 1              | 4%   |                |      | 1              | 20%  |
| TOTAL            | 42             | 100% | 21             | 100% | 6              | 100% | 5              | 100% |

The researchers are also curious to find out if there is a difference in the result if the respondents are grouped according to their civil status. Table 4 revealed job significance, pupils and salary are the top three motivators for both married and single teachers. 30% married and 28% single teachers ranked job significance as the number one factor that inspired them to work. This is followed by pupils at 27% and 28% respectively. Salary landed in number three, gaining 25% and 23% responses.

Table 4. According to the Civil Status

| Categories       | Married   |            | Single    |            |
|------------------|-----------|------------|-----------|------------|
|                  | Frequency | Percentage | Frequency | Percentage |
| Pupils           | 9         | 27%        | 12        | 28%        |
| Job Significance | 10        | 30%        | 12        | 28%        |
| Relationship     | 2         | 6%         | 3         | 8%         |
| Environment      | 1         | 3%         | 2         | 5%         |
| Recognition      | 1         | 3%         | 2         | 5%         |
| Salary           | 8         | 25%        | 10        | 23%        |
| Benefits         | 2         | 6%         | 1         | 3%         |
| TOTAL            | 33        | 100%       | 42        | 100%       |

Table 5 reveals that there are 32% of the respondents from Grade School ranked salary as the number one factor that encourage them to work. Also, based on the information they have given in their survey form, it was observed that there is a greater number of teachers who are newly married in the Grade School Department compared to the High School Department. This factor is followed by job significance at 23% and pupils at 21%.

Table 5. According to the Department

| Categories       | Grade School |            | High School |            |
|------------------|--------------|------------|-------------|------------|
|                  | Frequency    | Percentage | Frequency   | Percentage |
| Pupils           | 8            | 21%        | 13          | 35%        |
| Job Significance | 9            | 23%        | 13          | 35%        |
| Relationship     | 3            | 8%         | 2           | 6%         |
| Environment      |              |            | 3           | 8%         |
| Recognition      | 3            | 8%         |             |            |
| Salary           | 12           | 32%        | 6           | 16%        |
| Benefits         | 3            | 8%         |             |            |



|       |    |      |    |      |
|-------|----|------|----|------|
| TOTAL | 38 | 100% | 37 | 100% |
|-------|----|------|----|------|

**Research Question 3: What are the factors that influenced teachers to leave their workplace?**

In the second part of the survey, the researchers asked the respondents about the possible reasons why teachers leave their workplace. It was noted by the researchers that these factors may lead to dissatisfaction of the teachers, thus can drive them to leave their workplace.

Factors that can motivate and make the respondents happy to work are not the same factors that can trigger them to leave their workplace. Among the 75 respondents, 89% of them claimed during the informal interview that their salary is enough for their personal needs and they are satisfied about it but when they start to compare their work and responsibilities with the salary they receive, many of them think that the salary they receive does not compensate the work they do. And if opportunity arises, they will choose to work in a place where they can have greater chance of financial independence.

Similar results were projected by Alam and Farid (2011), in their research study entitled Factors Affecting Teachers' Motivation. Their findings revealed that 80% of the teachers felt their salary should improve because of great demands that their work requires them to do.

**Research Question 4: How can the school administrators improve the job satisfaction of the teachers?**

In the last part of survey, the researchers asked the respondents how any institution can improve the job satisfaction of the teachers. The result of the survey and informal interview revealed that there are many factors that can influence teachers' decisions about staying or leaving their jobs, but the result consistently indicate that salary, work load and supportive colleagues and supervisors are critical in their decision making.

Respondents cited competitive income, bonus, regular raise and other benefits can increase the likelihood of the teachers in staying longer in the institution. In the same manner, 37% of the respondents mentioned that it is imperative for them that they were given reasonable workload and 33% mentioned that a positive working environment is vital, where there is a caring and supportive interpersonal relationship among co-workers and administrators.

## Conclusions

Motivation varies from one person to another. It is based from an individual's perception and needs. The research evidence suggests that teachers are happy and motivated to work in school because they find meaning in what they do, they love teaching their students and they earn competitive financial compensation.

Another findings of this research revealed that when the respondents are grouped according to their age, civil status, length of teaching and department, there is no difference in their perception of what satisfies or encourage them to work in school. The students, job significance and financial compensation are still the top three consistent factors that can make teachers happy and motivated to work.

The results of this research also suggests that low pay, excessive work load and poor interpersonal relationship with co-workers especially with the administrators are factors that influence teachers' long term commitment with their employer.

*Hackman and Oldham Job Characteristics Model* support the results of this research study. Job Characteristics Model explains that job satisfaction occurs when the work environment encourages intrinsically motivating characteristics like skill variety, task identity, task significance and autonomy.

Likewise, the findings of this study support the views of Frederick Herzberg's *Two Factory Theory* and Abraham Maslow's *Hierarchy of Needs*. The findings propose that external rewards like the salary and working environment are important for the teachers to satisfy their physiological and security needs but these are not the main motivating factors for teachers to stay working in school. Rather, the result suggests that teachers are intrinsically



motivated. Their job satisfaction came from realizing the higher level of psychological needs such as the nature of the work itself, responsibility, achievement, recognition and advancement.

### **Recommendations**

Although financial compensation plays an important role in attracting and retaining efficient teachers, it is not only the motivator. Teacher motivation is based in the freedom to try new ideas, achievement of appropriate responsibility levels, and intrinsic work elements (Sylvia & Hutchinson, 1985). The following are the recommendations of the researchers to increase commitment and loyalty of the teachers to the institution.

#### *For School Administrators*

- Promote work and life balance

Many teachers feel bombarded with many responsibilities. A teacher who handles 7-8 classes a day in different grade levels, with advisory class, interest club and remedial classes may feel tremendously harassed and stressed. This is the same teacher who will make lesson plans, prepare visual aids for her next class, check and record test paper and handle parents' concerns. Even though they are compensated with every excessive load, the demands and expectations can be overwhelming.

For beginning teachers, avoid giving too much work load to help them adjust and learn the culture of their new environment. In addition, allow residency of at least three years in a grade level or subject area. By doing so, this can help the teachers improve what they started the previous year. Moreover, it may be helpful to allow the teachers to have a flexible work option or setting their own schedules as long as their work is consistently finished on time. Giving them reasonable workload can help them focus with their family and assist them to set their personal priorities.

- *Create a positive work environment*

Employees want to feel respected and valued. Trust them that they will do good work. Honesty and open mindedness are found necessary to strengthen the relationship of teachers and administrators. Provide supportive and non-intrusive supervision. There is a saying "Different strokes for different folks". This means that different people perceive different things. Talk to the teachers regularly and find out what matters to them. The opinions and concerns of the teachers should be continuously and positively welcomed regardless of age, position and years of stay.

Encourage them to ask questions and share ideas. Acknowledge and utilize the skills of each member. Ensure that their contributions are rewarded by simply appreciating them. Recognizing teachers who are making progress will definitely yield positive results. Private and public accolades can give motivation and can show other members examples of what kind of job performance is expected of them.

- *Encourage building social relationship*

For teachers to be happy at work, it is important for them to feel that they have a friend. Encourage building a social relationship among the teachers by arranging the workstation that can let them see and talk to one another. If possible allow them to eat together during lunch. Coordination, collaboration, dissemination of information and providing peer support is easier this way.

#### *For the HRD*

- *Conduct an employee satisfaction survey*

Have a survey every school year to monitor the job satisfaction of the employees. Pay attention to the results and continue listening to their suggestions. Try to investigate if there is a relationship between the job satisfaction of the respondents and their productivity level.

- *Promote Career Development*

Providing competitive salary and benefits can encourage teachers to work hard because they can see that all their efforts have been rewarded. But this is not always the case. Continue giving teachers the opportunity for



career development like funding conferences and advanced education. This can make them feel that they are important and valued members of the institution and the company wants to keep them around.

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## **Establishment of a Migrant Community: The Story of the *Jamahs* in San Nicolas, La Paz, Iloilo City**

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### **Abstract**

This study was conceptualized to reconstruct the history of the Muslims in Iloilo City who attend worship at the San Nicolas mosque. The study employed the descriptive case study method. The in-depth and semi –structured interviews were the main tools. Other tools were informal and direct observations and focus group discussion. Inconsistencies in the narratives were straightened out in the focus group discussion. The key informants were five Maranao Muslim males from Marawi City. Reasons for migration are mostly economic and majorities are traders from Lanao Del Sur. In the 1970's more migrants came most were single young males to avoid the then conflict between the Muslim rebels and the government troops during the Martial Law. All of the first generation migrants are males, the wives and female children followed once the males had established themselves. There were no concrete problems they have encountered as a community. The second and third generations have already adapted to the Ilonggo lifestyle. In general they encountered no resistance from the Ilonggos, they feel accepted. They have no recollection of stories of resistance from the first generation migrants either.

Keywords: Jamahs, migrant community

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## Introduction

Countless of people tend to move from one place to another for various reasons. Oftentimes, they move from towns to cities for different grounds. This movement is both voluntary and involuntary in nature. Migrations change how population is distributed in a certain area.

The term migrant denotes a person living outside his or her native country. Many leave their homes because there are not enough fertile pastures and arable land, food, water, work or other fundamental requirements. The consequences of environmental catastrophes, such as drought or floods, can also force thousands to leave their native countries. Today roughly two thirds of the world's populations live in economically poor countries. The growing gap between rich and poor is the most significant driving force for global migration. In 1960 the income of the richest fifth of the world's population was on average 30 times higher than the poorest fifth. By the year 1990 it was already 60 times higher, (Talpos et al. 2008).

As Datta (2004) notes: "Migration, any type, whether documented or undocumented, forced or voluntary can be explained in terms of push-pull factors (Datta, 1998). Push factors attribute to the negative characteristics operating at the center of origin whereas pull factors identify the positive characteristics (Datta, 2002) at the center of destination.

There are essentially two types of migrants. One is due to persecution for various reasons, and the other is economic reasons. Persecution is essentially either for political or religious reasons. In such cases, the persons are given asylum to adopted country. Since, it would be inhuman to send them back. An economic migrant does not receive these privileges. It could be noticed in the framework of this distinction that only the voluntary migration situations are susceptible to be described in terms of complex psychological motivations ex ante formulated. In a save the women and the children situation the instinct to preserve its own life and integrity will dominate the individual reactions without any other more sophisticated considerations. Wars, natural disasters, political and religious persecutions, the lack of vital natural resources, social insecurity, all of these generates large human movements for which the shelter motive is prevailing.

People who migrate bring with them their culture, language, and even religion. Reasons for migration are mostly due to poverty, violence, economic opportunity, better living conditions and for security. In the Philippines, the most dominant pattern of migration is rural to urban which are attributed largely to economic condition.

In the Philippines, it is a fact that there are lots of Bicolanos, Ilocanos, Ilonggos, Cebuanos, Muslims and the like who migrate to urban areas (Tandug, 2011). However, the migration of Muslims always catches the attention of people in urban areas. What makes them different from the rest are their religion, traditions, beliefs and most of all the issues concerning Muslim terrorism. The enormous rate of population growth and the poor perspectives for economic development in some regions give rise to a tremendous migratory pressure, (Kervliet (1990).

In 1970 was a decade of turmoil in Mindanao. The so-called "land of promise" was besieged with a bloody Muslim secessionist movement met with strong resistance from the military. When then President Ferdinand Marcos declared martial law in 1972, many fled the violence-torn island. In search of a peaceful place to live, some 12 Muslims from Lanao del Sur found their way to the tranquil Iloilo City. On November 5, 1977, the Iloilo Islamic Association was established, the forerunner of what is now known as the Iloilo Muslim Community (IMC), the umbrella organization of Muslims in the city. According to Sammy Hadjimanan, IMC spokesperson and Muslim Federation Region 6 public information officer, nearly four decades after the establishment of the Iloilo Islamic Association, the number of Muslims in the city has grown between 2,000 to 3,000, (Macahilo, 2014).

According to Hadjimanan, Muslims feel welcome in Iloilo City. The Ilonggos are kind and do not discriminate the Muslim community. The very first mosque was located in Quezon Street, City Proper. It was where Muslims gathered to worship. The mosque moved to several areas of the city – Young Men's Christian Association building on Iznart Street and in Pueblo Concepcion, Mandurriao district – until it found a permanent place in Barangay Magdalo, La Paz district. Now, there are three thriving Muslim communities in Iloilo – one in Barangay Magdalo, La Paz; one in Barangay San Isidro, La Paz; and another in Barangay San Pedro, Molo district. Hadjimanan said leaders of these communities meet regularly and discuss concerns, (Macahilo, 2014).



### **Statement of Objectives**

The study aims to reconstruct the history of the Muslims in Iloilo City, particularly those who attend worship at the San Nicolas mosque. Specifically, the study addresses the following objectives: Why did the Muslims in Mindanao migrate to Iloilo City? How did they establish their community? What problems did they meet? How were the problems resolved? What is the dynamics of relations they established with the non-Muslims in the community?

### **Methodology**

The study employed the descriptive case study method as a means of exploring what constitute Muslim migrants realities and modes of being. Creswell (2003) define case study as researcher explores in depth a program, an event, an activity, a process, or one or more individuals.

For this study, qualitative research can also be described as an effective model that occurs in a natural setting that enables the researcher to develop a level of detail from being highly involved in the actual experiences (Creswell, 2003). No hypothesis was tested in the study.

Leedy and Ormrod (2001) state, case studies attempt to learn more about a little known or poorly understood situation. Creswell (1998) suggests the structure of a case study should be the problem, the context, the issues, and the lessons learned. The data collection for a case study is extensive and draws from multiple sources such as direct or participant observations, interviews, archival records or documents, physical artifacts, and audiovisual materials. The researcher must spend time on-site interacting with the people studied. The report would include lessons learned or patterns found that connect with theories.

### *The Respondents*

The respondents or the key informants of the study were five Muslim males with age ranging from 32 to 65. All of them are Maranaos coming from the City of Marawi or the province of Lanao del Sur. During the focus group discussion which was held after a Friday's worship, there were about ten adult *jama'ahs* who participated and two college age boys and two girls of the same age who participated.

### *The Location*

The community referred to in this study is not one specific geographical or political unit but an organization of migrants forming one religious cluster in the City of Iloilo. This cluster is based in the vicinity of Barangay San Nicolas, Lapaz, Iloilo City right at the back of the Western Institute of Technology Main Building. This could be accessed through an alley between Tony's Fastfood and the former Rizal Commercial Banking Corporation (RCBC) building along Luna Street, La Paz, across the St. Clement's Church.

### *Data Collection Techniques*

Since the study relied largely on key informants, in-depth interviews and semi-structured interviews were the main tools utilized for data gathering. Other tools supplementing the main tools were informal conversations, direct observations and focus group discussion (FGD).

Through the informal and iterative nature of semi-structured interviewing, the researcher obtained detailed information about the organization and community under study. Direct observations allowed the researchers to be immersed in the actual setting of the study, note of their facial expressions, body languages, and other hidden transcripts, to have a better understanding of how people act and interpret things given their social situations.

Owing to the dearth of written documentation on the history of the organization under study, research relied heavily on oral narratives. Inconsistencies in the narratives were straightened out in the focus-group discussion with the group coming to agree on a consensus as to what their shared realities are.



## Results and Discussion

### *Data Presentation and Analysis*

Members of this community are composed of the Jamahs (brothers) in La Paz, Lapuz, Jaro, and even in Molo. There were about 250 members 80 of which are permanent residents of Iloilo City while the rest are transients either renting or living with relatives whose stay in Iloilo are temporary and seasonal. They claimed to be the biggest and oldest cluster in Iloilo City. The clustering is based on the place of origin, as well as blood and affiliations by marriages. The kind of business that one engages in is also a consideration, with emphasis on "legitimate only enterprise". All of them are engaged in the buy and sell business at first selling goods first at the La Paz Market, then transferred to the malls and diversify their goods according to the demands of the market. Form selling malongs, imported sotanghons, canned goods and other food stuffs, they are now into costume jewelries, cellular phones and all its parts and accessories, electronics, ready to wear items and shoes and bags. At present, most of the Jamahs in the community are second and third generation migrants most have Ilongo wives and Iloilo-born children. Though they were modest and would not give exact figures on their income, saying that they earn just enough for them to live, but from observations and calculations, the cluster is made up of well off and middle class families. They dressed decently, were presentable and all their children are in school. With the enterprise they engage in, they are renting mall spaces at an average of PhP 10,000.00 per square meter, or an average stall at PhP 30,000.00 per month.

### *Reasons for Migration*

The earliest migration of Muslim brothers in Iloilo City is in the 1950's. Reasons for migration are mostly economic. Majority are traders from Lanao Del Sur (Maranaos), though there are Tausugs and Magindanaos but they comprise less than 5% of the approximately 3,000 Muslim populations in Iloilo City. They are searching for better opportunities to find a job, to build a career, to develop a business, to achieve a higher social status. They are characterized by a pro-active attitude and the involved risks have a lower relative importance. As a consequence, they will prefer the highly developed societies, economic performance oriented, with well developed technological infrastructures, with a dense urban network, a large degree of economic freedom, individualistic and with a "here and now" time perception. A greater difference between origin and destination in terms of economic condition will tend to stimulate this type of migration, (Tiebout, 1956).

In the 1970's more migrants came most were single young males. The main reason for the migration was to avoid the then conflict between the Muslim rebels and the government troops during the Martial Law. Those affected by such conflicts mostly flee in large numbers to safe regions in their native land or in a neighboring province or city, (Talpos et al, 2008). There was a massive recruitment of the Bangsa Moro Army/Moro National Liberation Front during the period and back then young males were the target. There were threats from both the rebels and the government's side. The experiences of the migrants and the causes for migration do not only reflect events and decisions in individual lives. They also point to **societal realities** and sometimes even to injustices that are embodied in global relationships such as poverty and unequal distribution of power and resources. Migrations, in that sense, are a pulse measure for our societies: they reveal tensions and challenges that cannot easily be dismissed. Therefore, migration issues are never sufficiently or adequately addressed when only the migrants themselves are looked at and not the societal and structural realities that surface in realities of migration, (Lopez, 2006).

In the 1980's migration was caused by following members of families who made good in Iloilo City and follow the footsteps established by those who migrated earlier. Talpos et al (2008), highlighted that in such situations, the city living at peace and in stable economic conditions are called upon to show their solidarity and share the burden (e.g. with measures such as the temporary admission of displaced persons, peace missions, material and reconstruction aid).

### *Establishing a Community*

Of the 3,000 Muslim populations today approximately 60% are males and 40% are females. But all of the first generation migrants are males, the wives and female children followed once the males had established themselves. Although the cluster is based in San Nicolas, there was no settlement therein. The first migrant being traders at the La Paz market, were renters in the San Nicolas area because of its proximity to the market.



There first settlements were actually in Lapuz, Mabini St., and Pueblo, Mandurriao where the first mosque of this cluster was located.

In the 1980's they transferred the mosque in San Nicolas when they acquired/purchased from a bank a foreclosed two-storey concrete residential structure standing on a 178 sq.m. lot. The purchase was made possible through a fund raising scheme. The same two-storey structure serves as the mosque, very little renovation was made. The first storey serves as the reception and wash area, also a place where their children are taught how to read and write in Arabic. Sometimes some travelling Muslims would also utilize the place for sleeping over but only when they have no other place to stay. There are always members present in the mosque everyday though almost all members are present during Fridays. Non-members of the cluster and other transients are also welcome during Friday worships when they opt to attend at the San Nicolas mosque (this usually happens when they are in the vicinity or for convenience because of the location of their trade). In spite of this, they would still like to reiterate that other clusters were different from them. They are neither one and the same nor similar. They would not like to be identified with other Muslims who are into the business of producing and selling pirated DVDs and other "illegal" things. This cluster was established by eleven first generation migrants of whom only three are still living now. The cluster then was a more or less loose organization of Muslim migrants to manage their religious and economic affairs. There could be no council for elders like in their birthplace because they belong to different clans and their issues and circumstances in Iloilo were different from where they came from. Composing this association were sub-clusters. They made use of this sub-cluster to raise funds for their first mosque in Pueblo as well as the one in San Nicolas. The scheme was that for each election period a sub-cluster has to put in money and pool their contribution and whoever had the most money raised, was the sub-cluster where the president shall come from. In 1988, they decided to formalize the association and register with the Securities and Exchange Commission. Their first registered name was Al-Islamiya Association, Inc. This time leadership was through election with the President having a term of three years.

However about three years ago, because the term 'Islamiya' has become associated with a terrorist group, they changed their name to Iloilo Muslim Community Association, Inc. As a leader summed up the change of name "*para di mainit sa autoridad*". Along with the change of name, they also change the structure, the President's term of office and the manner of election. Aside from the executive officers, there is a Board of Directors with each sub-cluster represented, functioning as the legislative body of the association. The President will be appointed by agreement of all members and will only have a one year term of office. The current President, Sammy Hadjimahan, was also appointed by Mayor Jed Mabilog as the Head of the Office of Muslim Affairs. More like an executive assistant to the mayor on matters relating to Muslim affairs. As acknowledgement on the part of the City Government on the contribution and importance of Muslim traders in the city, the permanent residents were all registered voters of Iloilo City. In fact, every election time candidates would come visit them to solicit for their votes.

#### *Problems*

There were no concrete problems they have encountered as a community. The second and third generations have already adapted to the Ilonggo lifestyle. From hindsight, they think that they have proven themselves to be good citizens and contributing to the thriving economy of Iloilo City. In fact the then mayor Mansueto Malabor conscious of their cultural practices in burying their dead gave them then a designated burial area at the Quintin Salas Public Cemetery. Mayor Mabilog also promised them burial area in the proposed Public Cemetery in Ingore, Lapaz. To avoid political conflicts they stand as non-partisan and refused to affiliate with any political party and refrain from block voting. As migrants, they have no problems with land tenure either because they owned the land where the mosques stands or majority of the permanent residents were able to purchase and build their own homes, while others are renting.

In general they encountered no resistance from the Ilongos, they feel accepted. They have no recollection of stories of resistance from the first generation migrants either. From their view point this could be because majority of them migrated here for "*hanapbuhay*" and as such are careful not to lose the opportunity and privilege of earning their living in the city. Conflicts among their members are addressed and resolved by the association adhering to the Islamic teachings and way of life.





Everybody who were interviewed individually and those who participated in the focus group discussion wanted to stay in Iloilo permanently than go back to their provinces. Iloilo they say is a much better place to live in. The human movements across borders, societies and cultures are not running in an “empty space”: the structural characteristics of the economic systems, the institutional architecture of societies, the cultural paradigm and the power relations between different social groups, define the magnitude and the limits of such movements. If the “hard” economic migration determinants are extensively explained in an abundant literature, the “soft” psychological/cultural determinants of “leave your old life” decision are less analyzed. It is the contention of this paper that what made Muslims stay in Iloilo is not purely an economic decision though it is the main consideration. The Ilonggos’ “openness” and “tolerance” with other culture is also a hidden consideration. This is not to say that Ilonggos welcome other cultures with open arms. Being a conservative linguistic group, Ilonggos have a reservation for other culture, only they are not vocal and do not articulate their thoughts and opinions. In a way this made the interaction between cultures smooth and functional (peaceful and civil co-existence)

The migrants on the other hand are careful not to offend their hosts by negotiating and keeping a balance between what they are in their hometowns and what they should be in Iloilo. The smooth interaction being the basis for their survival, they try to re-invent themselves to be people worthy of respect for the natives while at the same time careful not to lose their identities. The Muslim faith (Islam) is one of the absolute religious faiths. Yet, the migrants were able to negotiate their ways to accommodate what should have been prohibited but not to totally abandon the basic religious tenets. Like marrying non-Muslim hosts, the children are allowed not to wear headdress in public but demands to be traditional in the mosque. Members of the community under study also has embraced the Ilonggos giving priority on education but at the same time also conscious to enroll their children in tutorial Arabic lessons in the absence of a *Madrasah* in Iloilo. A traditional Muslim community is highly hierarchical and very clannish. There practices have been re articulated in how they made their clusters and how they deal with other clusters. For example, being the oldest cluster whose members are relatively economically well off, they enjoyed dominance over the other cluster. The emphasis that other clusters are different is also a manifestation of the hierarchical division and clannism. They have been successful in their desire for being integrated yet culturally separate. Conscious of being different and not to be identified with the political and terrorists movements for which Muslims are known for, they changed the name of their community several times.

The Local Government Unit of Iloilo City has finally recognized them as a sector. Traditional ways of conflict resolution is substituted by and functionally carried out by the officers of the community, based on Islamic teachings, so in effect what made this community successful is that they bring with them the cultural necessities of living as Muslims while trying to accommodate and adjust to the Ilonggos way of life.

## **Conclusions**

Most muslim migrants in La Paz, Iloilo City belong to Maranaos coming from the City of Marawi or the province of Lanao del Sur. Reasons for migration are mostly economic. Majority are traders from Lanao Del Sur (Maranaos). They also wanted to escape from the existing conflict between the Muslim rebels and the government troops especially during the Martial Law. Further, Muslim migrants believe that Iloilo City is a good place to establish a business and offer a better place to live in and to flee themselves from exposure to community of violence or anti-social behavior such as limited government services. On the later part, some of the Muslim migrants married Ilonggo women and had Ilonggo children who spent also their education in some universities and colleges in Iloilo City. Aside from the group of Maranaos, There were also Tausug and Maguindanao tribes who established business in various establishments like malls, etc. Lastly, they had good relationship with the rest of the Ilonggos; thus, they found no difficulty to establish their community in a peaceful, loving people of Iloilo City.

## **Recommendations**

The Iloilo City government should create a policy or law to address the needs of the Muslim migrants to make them productive for economic development of the city. Also, the city government will create a task force committee for Muslim migrants that will serve as bridge between the former and the latter to disseminate different programs of the national and city government and to strengthen the collaboration between the two communities concerning problems involving peace and order situation and interpersonal relationship. Further, the City government should formulate short and long term plans for Muslim migrants so as to integrate them to the community, to make them productive and to have harmonious relationship among them. Lastly, to the future





researchers, the data in this study will serve as benchmark to conduct another research focusing on formulation of long and short term plans to fully integrate these Muslim migrants to the community.

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## Four Pillars of Education: Extent of Realization as Manifestation of Learning

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### Abstract

Education is absolutely beneficial for society on the whole. It is a life-long process to each person that needs to be reinforced throughout life. Today in the 21st century, we live and work in a changing world. New laws are introduced that lead to the introduction of new policies. New ideas and approaches emerge. New problems arise and new solutions are sought. The world of work is therefore a constantly moving and evolving one. What this means, then, is that, if we are not constantly learning as we go about our day-to-day business, then each day we are getting further and further out of touch with the demands of the modern working. Philippine education is strongly viewed as a pillar of national development and a primary avenue for social and economic mobility. It has undergone several stages of development from the pre-Spanish time to the present. The research aimed to determine the perception of graduating students of Lorma Special Science High School as regards to the extent of realization of the four pillars of education as manifestations of learning. The researchers made use of descriptive method in the conduct of the study. The respondents of the study include all 98 graduating students of Lorma Special Science High School, Urbiztondo San Juan, La Union of school year 2014 to 2015. A questionnaire based on the different criteria and competencies in achieving and realizing the Four Pillars of Education by Jacques Delors was used to gather the data. The data were gathered and tabulated after which analyzed and interpreted, using weighted mean as well as one-factor ANOVA without replication. The researchers concluded that the four pillars of education are realized by the respondents. It was also shown that there are points of emphasis in each pillars that need to be considered and reviewed by the institution. The researchers also came up with further recommendation for each pillar where the school can bank on coming up with their educational programs and planning.

Keywords: education, pillars, realization, high school

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## Introduction

Education, like life, liberty and the pursuit of happiness is a basic human right (Raising the bar for Philippine education by Butch Hernandez: 2009). More aptly, education is an essential human virtue. Man becomes 'man' through education. He is what education makes him. It has been rightly said that without education, man is a splendid slave, reasoning savage. Education is an important human activity. It was born with the birth of the human race and shall continue to function as long as the human race lives. Education is more than reading, writing, and arithmetic. It is one of the most important investments a country can make in its people and its future and is critical to reducing poverty and inequality.

Education should be a means to empower children and adults alike to become active participants in the transformation of their societies. It should also focus on the values, attitudes and behaviors which enable individuals to learn to live together in a world characterized by diversity and pluralism.

Although education has a significant influence on life, the average education is not the same in different areas. As a result, strategies are being made to resolve the problems. Without education, life would be disastrous and detrimental. Consequently, to this day, we are trying our best to make education global and accessible for everyone particularly the poor and the disabled. There are still some places where the inhabitants are almost completely uneducated, causing a serious lack of knowledge. Additionally, every child should be given equal opportunities to learn and study. Because the development of a country depends vastly on the standard of education, it must do everything in its power to improve it. Although the educational systems of different countries are not similar, they have to share a common goal which is to provide its citizens a suitable and proper learning.

Today in the 21st century, we live and work in a changing world. New laws are introduced that lead to the introduction of new policies. New ideas and approaches emerge. New problems arise and new solutions are sought. The world of work is therefore a constantly moving and evolving one. What this means, then, is that, if we are not constantly learning as we go about our day-to-day business, then each day we are getting further and further out of touch with the demands of the modern working.

Some may think that learning is a luxury for a few individuals or learning should be concerned with our early years. It should be looked at as something well beyond formal schooling. It encompasses our entire life cycle. Philippine education is strongly viewed as a pillar of national development and a primary avenue for social and economic mobility. It has undergone several stages of development from the pre-Spanish time to the present. It is handled by four government organizations, namely, the Department of Education, Culture, and Sports (DECS), the Commission on Higher Education (CHED), the Technical Education and Skills Development Authority (TESDA), and Department of Science and Technology (DOST). The DECS govern both public and private education in all levels, with its mission "to provide quality basic education that is equitably accessible to all by the foundation for lifelong learning and service for the common good."

The Filipino people have deep concern for education because it occupies a central place in political, economic, social, and cultural life in the Philippines. The government allocates a high budget every year for Philippine education and guarantees that every Filipino has the right to quality education. However, there are some important issues that need to be looked closely and resolved by the government. Among the issues are:

These issues when addressed, no matter how daunting, are determinants of the improvements of the quality of education in the Philippines. In LORMA Colleges Special Science High School, inherent in its vision-mission statement, are envisioned to be an excellent Christian educational institution with a global perspective – emphasizing professional quality, Christian values, and leadership skills relevant to national development and missionary to empower students for service anywhere in the world through Christian-inspired, quality-driven, and service oriented education and training. In this light, this study is geared in determining if LCSSHS is meeting the demand of quality learning. The researchers are motivated to have a study on the extent of learning among the graduating students of LCSSHS - that is to provide a better view on the skills, values, attitudes and knowledge that would empower every graduate in the midst of the new social phenomena and new paradigms. As such, the researchers used the Four Pillars of Education to check the extent of realization as manifestation of learning among the graduating students.



### Statement of the Problem

This research is aimed to determine perception of 4<sup>th</sup> Year students of LORMA Colleges Special Science High School as regards to the extent of realization of the four pillars of education as manifestations of learning.

Specifically, it sought to answer the following questions:

1. What is the perception of graduating students as regards to the extent of realization of the four pillars of education as manifestations of learning along:
  - 1.1 Learning to Know
  - 1.2 Learning to Do
  - 1.3 Learning to Be
  - 1.4 Learning to Live Together in Peace and Harmony
2. Is there a significant difference between the perception of the three sections of the 4<sup>th</sup> year level as regards to the extent of realization of the four pillars of education as manifestations of learning along:
  - 2.1 Learning to Know
  - 2.2 Learning to Do
  - 2.3 Learning to Be
  - 2.4 Learning to Live Together in Peace and Harmony
3. Based on the result of the study, what recommendation can be proposed to improve content learning?

### Methodology

The descriptive method of research was used by the researchers in this study. It is primarily designed for them to gather detailed information about present condition.

The methods involved range from the survey which describes the status quo, the correlation study which investigates the relationship between variables, to developmental studies which seek to determine changes over time.

### Population and Sources of Data

The respondents of the study include all graduating students of the LORMA Colleges Special Science High School, Urbizondo, San Juan, La Union of school year 2014 to 2015.

### Presentation, Analysis, And Interpretation Of Data

Table 1. *Graduating LCSSHS Students' Perception as to the Extent of Realization of Learning along Learning to Know*

| Items                                                               | Weighted Mean | Decision       | Rank |
|---------------------------------------------------------------------|---------------|----------------|------|
| Critical thinking and Analysis                                      | 4.09          | Agree          | 13.5 |
| Communication Skills                                                | 4.29          | Agree          | 6    |
| Public Speaking skills                                              | 4.41          | Agree          | 2    |
| Reading skills with comprehension                                   | 4.32          | Agree          | 4    |
| Listening skills                                                    | 4.23          | Agree          | 8    |
| Observing skills                                                    | 4.19          | Agree          | 9    |
| Art of questioning skills                                           | 3.95          | Agree          | 17.5 |
| Note taking skills                                                  | 4.03          | Agree          | 16   |
| Accessing skills                                                    | 3.85          | Agree          | 20   |
| Processing skills                                                   | 3.89          | Agree          | 19   |
| Writing skills (good sentences, paragraph, essay)                   | 4.30          | Agree          | 5    |
| Computing skills                                                    | 4.17          | Agree          | 10.5 |
| Problem solving skills                                              | 4.33          | Agree          | 3    |
| Greater intellectual curiosity                                      | 4.17          | Agree          | 10.5 |
| Independent judgment                                                | 3.95          | Agree          | 17.5 |
| Relevant information, concepts, data needed for everyday living     | 4.04          | Agree          | 15   |
| Selecting and using information                                     | 4.11          | Agree          | 12   |
| Discovery approach/ research skills                                 | 4.26          | Agree          | 7    |
| Mathematical interest through engagement in Math-related activities | 4.09          | Agree          | 13.5 |
| Computer skills                                                     | 4.51          | Strongly Agree | 1    |
| Average Mean                                                        | 4.16          | Agree          |      |
| Standard Deviation                                                  | 0.8           | Homogenous     |      |



Table 1 presents the graduating students' perception as to the extent of realization along learning to know. It can be gleaned from the table that the highest weighted mean of 4.5 is along computer skills. This can be implied on their exposure to different technology wherein they are geared to apply computer skills in understanding concepts presented through different learning situations. Also, the school provides the students sources like Genyo accounts and robotics club to enhance the students' computer skills. On the other hand, the lowest weighted mean of 3.85 is along accessing skills. It could be inferred that Lorma should also give importance on how the students use resources for their reports and/or researches. Nevertheless, it is reflected in the table that the respondents agree, with accumulated mean of 4.16, that Lorma Colleges Special Science High School is able to realize the first pillar of education.

Table 2. *Graduating LCSSHS Students' Perception as to the Extent of Realization of Learning along Learning to do*

| Items                                                       | Weighted Mean | Decision   | Rank |
|-------------------------------------------------------------|---------------|------------|------|
| 1. Occupational Skills related to and needed for Profession | 4.04          | Agree      | 5    |
| 2. Competence in Work                                       | 3.95          | Agree      | 9    |
| 3. Hard Work and Perseverance                               | 4.12          | Agree      | 2    |
| 4. Commitment and Loyalty                                   | 4.11          | Agree      | 3    |
| 5. Integrity and Honesty                                    | 4.01          | Agree      | 6.5  |
| 6. Behave ethically and responsibly at work                 | 3.86          | Agree      | 10   |
| 7. Capacity for teamwork                                    | 4.14          | Agree      | 1    |
| 8. Democratic in dealing with others                        | 3.97          | Agree      | 8    |
| 9. Efficient and effective in work                          | 4.05          | Agree      | 4    |
| 10. Initiative                                              | 4.01          | Agree      | 6.5  |
| Average Mean                                                | 4.03          | Agree      |      |
| Standard Deviation                                          | 0.03          | Homogenous |      |

Table 2 reveals the graduating students' perception as to the extent of realization along learning to do. It is reflected in the table that the respondents have learned in their 4-year stay in Lorma a high value capacity for teamwork as the said manifestation reaped the highest mean of 4.14. This can be attributed to the strong motivation of the school to boost unity among the students. And, a lot of group works could be seen in different activities of the school like Student Supreme Government (SSG) officers' work together to come up with ideas for the school's different programmes (e.g. BuwanngWika), teachers give group projects in their class, and leadership training. However, in spite of being trained to reflect a good attitude, it is revealed from the said table that the respondents' behavior at work ranked the lowest skill under the aforementioned pillar for garnering the mean of 3.86. This result should convey a message to Lorma. Nonetheless, the respondents agree that Lorma has realized the second pillar of education for garnering a total mean of 4.03. Simply put, Lorma is able to provide the respondents the skills that would enable them to effectively participate in the global economy and society.

Table 3. *Graduating LCSSHS Students' Perception as to the Extent of Realization of Learning along Learning to be*

| Items                                                | Weighted Mean | Decision   | Rank |
|------------------------------------------------------|---------------|------------|------|
| 1. Maintaining and advancing human dignity and worth | 4.12          | Agree      | 4.5  |
| 2. Personal Responsibility                           | 4.27          | Agree      | 1    |
| 3. Spiritual values (Love of God)                    | 4.16          | Agree      | 2    |
| 4. Ethical values (Code of Ethics)                   | 3.96          | Agree      | 10   |
| 5. Peace and Justice                                 | 4.03          | Agree      | 7    |
| 6. Creativity and Appreciation of Beauty             | 4.01          | Agree      | 8.5  |
| 7. Self-esteem, self-worth, and self-confidence      | 4.04          | Agree      | 6    |
| 8. Protect and Safeguard nature                      | 3.94          | Agree      | 11   |
| 9. Genuine service for others                        | 3.88          | Agree      | 12   |
| 10. Participation in extension of outreach programs  | 4.01          | Agree      | 8.5  |
| 11. Leadership skills                                | 4.13          | Agree      | 3    |
| 12. Physical welfare (proper hygiene, diet)          | 4.12          | Agree      | 4.5  |
| Average Mean                                         | 4.06          | Agree      |      |
| Standard Deviation                                   | 0.03          | Homogenous |      |



Table 3 presents the graduating students' perception as to the extent of realization along learning to be. It can be gleaned from the respondents agree that Lorma has realized the third pillar of education with an accumulated mean of 4.06. This means that Lorma has provided self, analytical, and social skills to enable them to develop their fullest potential psycho-socially, affectively, as well as physically, for an 'all-round' complete person. Specifically, the table shows that the respondents agree that Lorma has helped them in maintaining and advancing human dignity and worth. This can be attributed to the subject of the respondents Values Education wherein they are molded to become what their goal aspire them to be. This is inherent in Lorma where it envisions an excellent Christian educational institution with a global perspective – emphasizing professional quality, Christian values, and leadership skills relevant to national development. It is shown in the table that personal responsibility got the highest rank with a weighted mean of 4.27, it could be inferred that even if the students' have the capacity for teamwork students' are still able to have personal responsibility. Meanwhile, genuine service for others got the lowest with 3.88. Lorma should train more the students or give more activities such as outreach programs, coastal clean-up, and tree-planting.

Table 4. *Graduating LCSSHS Students' Perception as to the Extent of Realization of Learning along Learning to Live Together in Peace and Harmony*

| Items                                                                                | Weighted Mean | Decision   | Rank |
|--------------------------------------------------------------------------------------|---------------|------------|------|
| Building a genuine and lasting culture of peace                                      | 3.93          | Agree      | 12   |
| Developing understanding of others and the history, traditions, and spiritual values | 4.07          | Agree      | 5    |
| Tolerance of diversity and respect for others                                        | 4.17          | Agree      | 2    |
| Sharing one's talents and resources                                                  | 4.16          | Agree      | 3    |
| Compassion                                                                           | 3.97          | Agree      | 10   |
| Social Responsibility                                                                | 4.13          | Agree      | 4    |
| Solidarity with others                                                               | 3.97          | Agree      | 10   |
| Inner peace in mind and heart                                                        | 3.91          | Agree      | 13   |
| Active citizenship/ nationalism/ patriotism                                          | 3.84          | Agree      | 15   |
| Emotional stability                                                                  | 3.85          | Agree      | 14   |
| Relationship building and cooperation                                                | 4.19          | Agree      | 1    |
| Peace education/ art of negotiations/ mediation                                      | 3.97          | Agree      | 10   |
| Decision-making skills                                                               | 4             | Agree      | 7.5  |
| Gender sensitivity/ gender equality                                                  | 4.02          | Agree      | 6    |
| Promoting nonviolence action                                                         | 4             | Agree      | 7.5  |
| Average Mean                                                                         | 4.01          | Agree      |      |
| Standard Deviation                                                                   | 0.03          | Homogenous |      |

Table 4 presents the perception of graduating students as to the extent of realization along learning to live together in peace and harmony. It can be gleaned from the said table that the respondents agree that Lorma has realized the fourth pillar of education. This implies that Lorma has exposed them to the values implicit within human rights, democratic principles, intercultural understanding and respect and peace at all levels of society and human relationships to enable them and societies to live in peace and harmony.

Table 5 presents the summary of the results obtained in the tabulation and testing of the data gathered. It can be inferred from the table that the most realized pillar is learning to know. To note further, the average mean the respondents along the first pillar is 4.16. With this, the group agrees that the necessary knowledge expected in their year level are met or realized. This only implies that Lorma Colleges Special Science High School really catered and addressed the needed competencies for them to be prepared fully in educating its students. Meanwhile, the least realized pillar is learning to live together with the average mean of 4.01. It implies that the skills along this pillar of education are somehow less promoted in the subjects provided in their curriculum compared to the other skills along the remaining pillars of education.





Table 5. Average Mean on the Students' Perception as to the Extent of Realization of Learning along the Four Pillars of Education

| Pillar of Education | Mean | Decision | Rank |
|---------------------|------|----------|------|
| LTK                 | 4.16 | Agree    | 1    |
| LTD                 | 4.03 | Agree    | 3    |
| LTB                 | 4.06 | Agree    | 2    |
| LTL                 | 4.01 | Agree    | 4    |

Legend:

LTK – Learning to Know

LTD – Learning to Do

LTB – Learning to Be

Post hoc analysis

p-values for pairwise t-tests

|            |       | Aristotle | Archimedes | Galileo |
|------------|-------|-----------|------------|---------|
|            |       | 4.018     | 4.251      | 4.360   |
| Aristotle  | 4.018 |           |            |         |
| Archimedes | 4.251 | 6.92E-06  |            |         |
| Galileo    | 4.360 | 1.56E-10  | .0307      |         |

LTL – Learning to Live Together in Peace and Harmony

Table 5 demonstrates that Archimedes has a significant difference with Aristotle while Galileo has a significant difference with Aristotle and Archimedes. It means that the sections in which the students belong affect their perception in the four pillars of learning.

## Conclusions

Based on the foregoing findings, the following conclusions are drawn:

1. The graduating high school students are trained most on computer skills. However, they are not equipped well with accessing skills.
2. The graduating high school students imbibed the value of capacity for teamwork, meaning they exhibit and practice working together as a group. However, they need to behave more ethically and responsibly at work.
3. It was noted in the third pillar of education, Learning to Be, that the graduating high school students have high ability to personal responsibility. They recognize the importance of taking charge of one's own duties. Nonetheless, they are not well trained in genuine service for others.
4. It was identified in the fourth pillar, learning to live together in peace and harmony, that the graduating high school students are well trained with the value of relationship building and cooperation. However, despite their ability to unite with others within their environment, the students are still not trained well to active citizenship / nationalism/ patriotism. They do not put much effort on promoting social responsibility, conscience, and public spirit.
5. The graduating high school students agree that the skills along the first pillar of education, learning to know are realized. It only means that their needs with regard to the first pillar, learning to know, are sufficient.
6. The graduating high school students agree that the skills expected of them along the second pillar of education, learning to do, are realized.
7. The graduating high school students agree that the skills expected of them along the third pillar of education, learning to be, are realized.
8. The graduating high school students agree that the indicators on the fourth pillar of education which are competencies, attitudes and values are deeply given emphasis and these indicators are met.



## **Recommendations**

Based on the foregoing conclusions, the following recommendations are offered:

### *Learning to Know*

For graduating LSSHS students, in order to track down the information you need effectively, you will need to develop a search strategy. This means thinking about how you should break down the information you need, and identifying the terminology that will help you find what you're looking for. You will learn how to put together a search statement.

Therefore, the researchers recommend the respondents to take serious efforts on developing within them such competence.

For the teachers, it could be possible that the same findings may be culled out for future graduating LSSHS students. Therefore, they should further shovel off deficiencies and overhaul their methodologies in teaching the skill. Provide work-based activities, tutorials and remediation if possible. Above all, linking accessing concepts to real life situations must be done in order to create more enduring learning.

The program head should also organize activities on basic accessing skills before graduation in order to refresh the concepts within them..

### *Learning to Do*

The graduating LSSHS students should behave more ethically and responsibly at work. To make this happen, the teachers should give more opportunities in activities like values oriented workshops because this will help every student to behave ethically and responsibly at work; thus, revitalizing their capacity to work ethically and responsibly. Moreover, this may also ignite members to have the initiative to catch and to help other members' troubles. Values oriented tasks will give the desired manners and conduct to build and maintain a positive social environment.

### *Learning to Be*

For graduating LSSHS students, researchers suggest that students should acquaint themselves with understanding how to properly behave in certain situations. They should be familiar with the issues confronting the mission and value of business or organization, how professionals are supposed to approach problems, the ethical principles based on the organization's core values the standards to which the professional will be held. Furthermore, they must be aware of their gargantuan responsibility in the guide principles designed to help students to conduct business honestly and with integrity. With these, they could also become familiar of the ways they can do.

Extension services along this area should also be organized. Examples of these extension services are Sea Coastal Clean-Up Drive, Tree Planting and Parenting, Waste Management Drive, and the like.

### *Learning to Live Together in Peace and Harmony*

For graduating LSSHS students, it is viewed by educators that one of the goals of education is to bring out the best in the learners. This includes, of course, active citizenship, nationalism, and patriotism. But how can teachers urge learners to share their love of country if they themselves are not capable of sharing their own love? Therefore, the graduating students should see to it that they become models of their own goals. They must learn to share their love when opportunities to do so come in. They are encouraged to join clubs and organizations that could provide them such opportunities.

The teachers are also encouraged to provide various learning activities where the active citizenship, nationalism, and patriotism of the students can be showcased. These include role-playing, jingle making, poster-slogan making, poem and essay writing, reporting, and the like.



Also, in connection to the recommendation offered under Learning to Do about the meetings, such avenue could also become an acquaintance day for all students wherein collision of talents can be provided.

Furthermore, while LSSHS as well as the teachers provide different avenues for competitions, still the value of peace manifested in healthy competitions, unity, and the like must always be enforced.

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## Heuristic: Its Influence to the Mathematics Anxiety and Coping Mechanism

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### Abstract

This is a quantitative-qualitative study that aims to determine the influence of heuristic or problem solving strategies (PS) to the mathematics anxiety of 97 or 87% of the Bachelor of Elementary Education (BEEd) second year students of Western Visayas College of Science and Technology enrolled in the subject Problem Solving during the second semester, SY 2014-2015. It also aims to find out the coping mechanisms and perceived causes of mathematics anxiety of the participants. For the quantitative data, one group pretest-posttest design was used. The Mathematics Anxiety-Apprehension Survey (MAAS) was administered before the start of the intervention and at the end of the intervention. For the qualitative data, the participants were asked to write a journal on perceived causes of their math anxiety and their coping mechanism. Personal interviews were conducted to participants with high math anxiety regarding their coping mechanism. The statistical tools used were the mean, standard deviation, Wilcoxon Signed Rank test, and Kruskal-Wallis Test. The test in hypothesis was set at .05 alpha level. Results showed that, as an entire group, and when grouped according to sections, the participants have "moderate" mathematics anxiety. Likewise, the participants have "moderate" mathematics anxiety before and after learning heuristic strategies. There is no significant difference in the level of mathematics anxiety when the participants were grouped according to sections and before and after learning heuristic strategies. The perceived causes of mathematics anxiety of the participants were mostly attributed to their bad experience with their teachers in basic education such as "terror" teachers, physical or verbal punishment, as well as time pressure during math examinations/quizzes. Another identified factor was the quality of teaching, like teachers spoke too fast or spoke with a low voice. Some of the common coping mechanisms of the participants were "studying harder", "utilizing problem solving strategies or heuristics", "asking help from peers", "listening attentively during class", and "developing positive attitude" in mathematics.

Key words: Heuristic, Problem Solving Strategies

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## Introduction

Problem Solving means engaging in a task for which the solution method is not known in advance. Problem solving (PS) has always been regarded as a focal point of mathematics, (Castro, 2008; Santos, 2007). It is regarded as the methodological backbone to approach mathematics content since it both requires and helps develop skills in analysis, comprehension, reasoning, and application.

We believe that gaining the competence to solve mathematics problems should be an achievable goal of education in which students are allowed to generate their own PS strategies and compare them with other alternatives rather than applying algorithm.

George Pólya (December 13, 1887 – September 7, 1985, in Hungarian Pólya György) was a Hungarian mathematician. He is most noted for his work in heuristics and mathematics education, publishing several books on the subject, the most famous of which is the celebrated *How to Solve It*. In *How to Solve It*, Pólya provides general heuristics for solving problems of all kinds, not only mathematical ones. Heuristic is a method of problem solving using strategies such as Exploration, Trial and Error Method or Guess, Check, and Revise; Compute or Simplify; Use a Formula; Make a Model or Diagram; Use a Table, Chart or List; Consider a Simpler Case; Eliminate; and Look for Patterns. ([http://upload.wikimedia.org/wikipedia/commons/5/5a/George\\_P%C3%B3lya\\_ca\\_1973.jpg](http://upload.wikimedia.org/wikipedia/commons/5/5a/George_P%C3%B3lya_ca_1973.jpg))

Research has shown that prospective teachers tend to "see mathematics as an authoritarian discipline, and that they believe that doing mathematics means applying memorized formulas and step by step procedures or algorithm" (Szydlik, Szydlik & Benson, 2003, p.254). Prospective primary teachers have a very traditional idea of mathematics problems that are quite different from the suggestions of current curricular proposals (Blanco, 2004; Johnson, 2008).

Lack of knowledge of different strategies to attack a mathematical situation or problem leads to anxiety. Tobias and Weissbrod (1980) define mathematics anxiety as "the panic, helplessness, paralysis, and mental disorganization that arises among some people when they are required to solve a mathematical problem". It is both an emotional and cognitive dread of mathematics. According to Dodd (1999) mathematics anxiety is not an inherited tendency. It can be created when teachers place greater value on memorizing formulas and applying rules and when they overlook the interconnections between students' academic performance and their feelings about themselves and the subject being studied. Teacher's negative attitude in class may likewise cause great anxiety in students.

The present researchers believe that setting the perspective from which each student approaches mathematics and teaching them how a problem will be tackled or what procedures will be used or avoided is presumed to help reduce mathematics anxiety. Consequently, these beliefs need to be taken into account in teacher education, which, if necessary, will have to try to promote their change and the generation of new beliefs. Problem solving is a required subject to the Bachelor of Elementary Education students in the last nine years. Castro (2008) and Santos (2008) recognize that attempts to teach students general Problem Solving strategies referred as heuristic method have been unsuccessful. Also, it is important to emphasize the lack of attention in textbooks to learning heuristic problem solving strategies (Schoenfeld, 2007; Pino & Blanco, 2008).

According to Zopp (1999), mathematics anxiety is not an inherited tendency; it is created. Similarly, Carroll (1976) asserts that anxiety is learned. Like teachers, parents with math anxiety can also pass this feeling on to their children (Fiore, 1999). Anxiety can also be created when teachers place too much emphasis on memorizing formulas and applying rules. Problem Solving uses strategies that do not encourage algorithm and memorizing formulas, thus learning PS might help reduce math anxiety.

Based on the aforementioned assumptions and motivated by the need to find out the level of mathematics anxiety and coping mechanism of the participants, the researchers were motivated to conduct this study. This study is based on the premise that exposing students to heuristic or problem solving strategies has an effect on their mathematics anxiety and coping mechanism.

## Statement of Problems and Hypothesis



This study aims to determine the influence of heuristic or problem solving strategies to the mathematics anxiety and to find out the coping mechanisms and perceived causes of mathematics anxiety of the participants.

Specifically, this study sought to answer the following questions:

1. What is the level of mathematics anxiety of the participants before learning heuristic?
2. What is the level of mathematics anxiety of the participants after learning heuristic?
3. Is there a significant difference in the level of mathematics anxiety of the participants before and after learning heuristic?
4. What are the most common coping mechanisms in mathematics of the participants?
5. What are some of the perceived causes of mathematics anxiety of the participants?

Based on the foregoing problems, the following hypothesis is advanced:

There is no significant difference in the level of mathematics anxiety of the participants before and after learning heuristic.

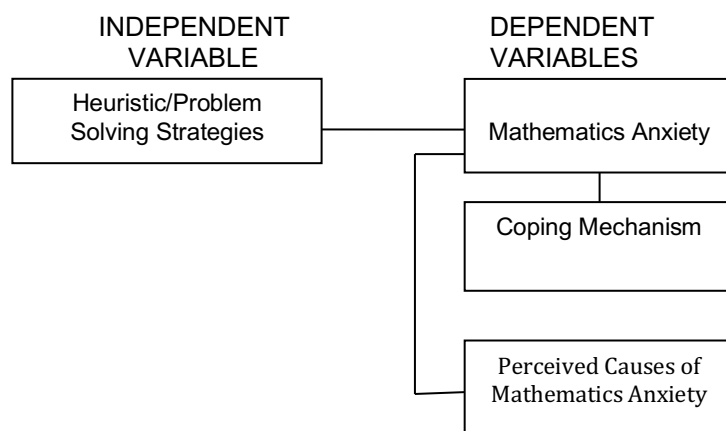


Figure 1. Paradigm showing the relationship among selected variables: mathematics anxiety, coping mechanism, and heuristic/problem solving strategies.

## Methodology

This is a quantitative-qualitative study that aims to determine the influence of heuristic or problem solving strategies to the mathematics anxiety of 97 or 87%\_BEEd second year students who were enrolled in the subject Problem Solving during the second semester of SY 2014-2015. The three sections of second year BEEd students were exposed to the intervention "Problem Solving Strategy or Heuristics" for one semester. For the quantitative data, one group pretest-posttest design was used. The Mathematics Anxiety-Apprehension Survey (MAAS) was administered before the start of the intervention and at the end of the intervention. For the qualitative data, the participants were asked to write a journal on perceived causes of their math anxiety and their coping mechanism. Personal interviews were conducted to participants with high math anxiety regarding their coping mechanism.

As shown in Table 1, there were 97 or 87% participants. Composed of three sections, there were 36 participants from BEEd 2-A, 31 participants from BEEd 2- B, and 30 participants from BEEd 2- C.

Table 1. *Distribution of Participants According to Sections*

| Category        | f  | %   |
|-----------------|----|-----|
| A. Entire Group | 97 | 100 |
| B. Section      |    |     |
| BEEd 2 - A      | 36 | 37  |
| BEEd 2 - B      | 31 | 32  |
| BEEd 2 - C      | 30 | 31  |

## Instruments





For the qualitative data, the students were asked to submit a journal about their perceived causes of mathematics anxiety and how they coped with these anxieties.

For the quantitative data, the data-gathering instrument used was the Mathematics Anxiety-Apprehension Survey (MAAS). The researcher-made Mathematics Anxiety-Coping Mechanism Rating Scale was adapted from Go (2004) which was adapted from McCormick and Scott (2003). Originally, this instrument consisted of 40 items but after the pilot testing, it was reduced to 25 items only where the obtained reliability (alpha) was 0.81. Each participant was asked to express his agreement/disagreement with each statement on a 5-point Likert scale. For the positive statements, these are Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). For the negative statements, the scale was reversed to 1, 2, 3, 4, 5 respectively.

Before the scoring was done, each statement was classified as either positive or negative. To determine the level of mathematics anxiety of the participants, the score was determined. The higher the score, the stronger the agreement between the students' perception of the item(s) and their mathematics anxiety-apprehension score. The highest possible score for any of the 25 items is 5 and the lowest score is 1, while the minimum and maximum scores are 25 and 125 respectively. The scores were interpreted as follows:

| Scale     | Description       |
|-----------|-------------------|
| 105 – 125 | Very high anxiety |
| 85 – 104  | High anxiety      |
| 65 – 84   | Moderate anxiety  |
| 45 – 64   | Low anxiety       |
| 25 – 44   | Very low anxiety  |

## Results and Discussion

### Quantitative Data Analyses

Table 2 presents the data on the pretest-posttest level of mathematics anxiety of the participants when grouped according to section. In the pretest, as an entire group, the participants have “moderate” mathematics anxiety of  $M = 78.52$  and  $SD = 12.13$ . When the participants were grouped according to sections BEEd 2-A, BEEd 2-B, and BEEd 2-C, they too have “moderate” mathematics anxiety of ( $M = 77.31, SD = 12.36$ ), ( $M = 80.29, SD = 11.73$ ), and, ( $M = 77.23, SD = 12.24$ ) respectively. The standard deviations ranged from 11.73 to 13.68 which show a narrow dispersion of the scores about the mean, indicating homogeneity of the participants in terms of their level of mathematics anxiety.

Likewise in the posttest, when the participants were grouped according to sections BEEd 2-A, BEEd 2-B, BEEd 2-C, they too have “moderate” mathematics anxiety of ( $M = 78.53, SD = 11.89$ ), ( $M = 81.16, SD = 12.29$ ), and ( $M = 81.60, SD = 13.68$ ) respectively.

Table 2. Level of Mathematics Anxiety of the Participants When Grouped According to Section

| Category        | Mean  | Description | SD    |
|-----------------|-------|-------------|-------|
| Pretest         |       |             |       |
| A. Entire Group | 78.52 | Moderate    | 12.13 |
| B. Section      |       |             |       |
| BEEd 2-A        | 77.31 | Moderate    | 12.36 |
| BEEd 2-B        | 80.29 | Moderate    | 11.73 |
| BEEd 2-C        | 77.23 | Moderate    | 12.24 |
| Posttest        |       |             |       |
| A. Entire Group | 80.04 | Moderate    | 12.52 |
| B. Section      |       |             |       |
| BEEd 2-A        | 78.53 | Moderate    | 11.89 |
| BEEd 2-B        | 81.16 | Moderate    | 12.29 |
| BEEd 2-C        | 81.60 | Moderate    | 13.68 |



| Scale     | Description       |
|-----------|-------------------|
| 105 - 125 | Very high anxiety |
| 85 - 104  | High anxiety      |
| 65 - 84   | Moderate anxiety  |
| 45 - 64   | Low anxiety       |
| 25 - 44   | Very low anxiety  |

The result of the Wilcoxon Signed Ranks Test of the difference in the level of mathematics anxiety is shown in Table 3. There is no significant difference in the level of mathematics anxiety when the participants were grouped before and after learning heuristic or before pretest and posttest. The ( $p = .197$ ) implies that the participants have the same level of mathematics anxiety before and after learning heuristic.

Table 3. *Differences in the Level of Mathematics Anxiety When the Participants Were Grouped Before and After the Intervention*

| Category         | Mean Rank | Sum of ranks | z-value | Significance |
|------------------|-----------|--------------|---------|--------------|
| Pretest-Posttest |           |              |         |              |
| Negative Ranks   | 44.95     | 1933         | -1.289  | .197         |
| Positive Ranks   | 50.52     | 2627         |         |              |

( $p > .05$ ) is not significant.

Table 4 presents the result of the Kruskal-Wallis test which reveals that there is no significant difference in the level of mathematics anxiety when the participants were grouped according to sections before the intervention with the result of  $p = .237$ , and a  $p = .727$  after the intervention. Regardless of what sections they belong, the participants have similar mathematics anxiety.

Table 4. *Differences in the Level of Mathematics Anxiety When the Participants Were Grouped According to Section*

| Category   | N  | Mean Rank | Chi-square | df | Significance |
|------------|----|-----------|------------|----|--------------|
| Entire     | 97 |           |            |    |              |
| A.Pretest  |    |           | 2.877      | 2  | .237         |
| BEEd 2- A  | 36 | 45.51     |            |    |              |
| BEEd 2- B  | 31 | 56.06     |            |    |              |
| BEEd 2- C  | 30 | 45.88     |            |    |              |
| A.Posttest |    |           | .638       | 2  | .727         |
| BEEd 2- A  | 36 | 46.40     |            |    |              |
| BEEd 2- B  | 31 | 49.16     |            |    |              |
| BEEd 2- C  | 30 | 51.95     |            |    |              |

( $p > .05$ ) is not significant.

Qualitative Data Analysis  
 Participants' Journals



BEED 2-A

Feb. 2, 2015

How did you cope with your anxiety and nervousness?

I cope my anxiety and nervousness in problem solving by reviewing and studying my lessons in problem solving. Honestly speaking, I am only studying when I have assignments. I am not that scared in problem solving, but I am really worried because since I was in grade school I am not that good in problem solvings. I got confused when I encounter some problems that are new to me, so that's why I had some hard time in understanding it. Recently, I easily cope my anxiety in problem solving when I discover some strategies in



BEED 2-C

FEBRUARY 3, 2015

I cope my Math anxiety if I listen carefully to what the teacher discuss all about, I started to memorize all the formula, I started to practice some math problems, I started to use some technique, study according to my one's own learning styles and I asked for help and focus on my past accesses, so that I can learn faster and I'm started to not be afraid for coming exam or etc.

**BEED 2-C**

During my elementary level, my teacher tried to convince me to answer the problem solving at the blackboard but I didn't answer it correctly. A few minutes she scolded me and throw a piece of chalk in front of me. I was scared at that moment. It seems that she doesn't care on us. However, the fear that I have on my elementary years is turn to be worst when I'm in my high school years. Every time I enter my math class I look pale. I felt nervous. I don't want to enter my math class anymore. It seems that I have a phobia on what I have experience during my elementary years. That is why I am not active in reciting and answering on the board since I don't want to give a wrong answer that would lead in throwing a piece of chalk in front of me. I hope that I have a brain like my classmates and friends who are good in math subject. Unlike me, I hate math. I am not interested on numbers, memorizing formulas and so on.

But for now on, I am memorizing the formulas on how to solve a problem and what technique to be used and I am interested on numbers. I am not also getting pale when I enter on my math class. Every time I enter on my math class, I always pray to God that he would give me strength and help me to survive from this subject. And I believe that my family will always be there to support me and guide me every time.

Need 2-C

In my past experience, I encountered math teachers who were very strict to their students. For me, teacher factor is one of the cause why some students have math anxiety. When a teacher is very strict to their students it may affect the student's understanding to that subject. Students become afraid to involve in the discussion because of the fact that he may have a wrong answer . It may cause pressure to students who did not participate in the lesson, the questions in his mind have no solution of not participating in the class because he is afraid to the teacher.

During my high school days, I encountered math teacher whom which he keeps on insulting us instead of motivating us. When we cannot understand the lecture by him because of the fact that the lessons were very difficult especially on deriving some formulas. Most of the time during our exams, I got a low scores because I don't know how to solve the problems in the test. I observed that if the teacher is not strict and eager to teach the students so that the students will understand the lecture, math anxiety will be lesser. This time, in my college level my math anxiety is not longer an anxiety rather it becomes my strength to cope up with this weakness. I find my self that sometimes math subject is enjoyable if we are only eagerness to learn.

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\* What do you think are the causes of your math anxiety?  
My Math anxiety started when I was in 5th grade  
high school. Our teacher was not strict. He often joked  
around but I don't understand his decisions, the same also  
with my classmates. When I was out of school I was so  
depressed that I've got a line of seven in Math.  
It was my first time to have a line of seven. From then  
on I was always afraid and tense in Math, I always  
think that I will get a line of seven again.

4. How did you cope with your math anxiety?  
For me to cope with my math anxiety;
  1. I read inspirational literature. ex. Personality Plus etc..
  2. I ask some study tips to my friends who are good in math.
  3. I join in group study.
  4. I ask my classmate to have a peer tutoring.
  5. I try my best to focus and study my lesson.
  6. I eat lots of fruits & chocolate when the stress.

BEED 2-C

Do you think you have math anxiety? What are the reasons of your math anxiety? How did you cope with math anxiety?

Yes, I have math anxiety. The idea of having math lessons makes me feel nervous. I hate math subject a lot ever since I was a kid. Math is hard to understand, no wonder I always got a low score everytime we have quiz/exam. My fear in math depends on the teacher. I feel uncomfortable and uneasy if the teacher teaching us lacks consideration and understanding towards his/her students. I started to fear math when our teacher way back in elementary scolded us everytime we don't get the answer right or we don't know how to answer the question and sometimes she hits us with a stick I can say that my foundation in math is quite weak and not yet developed.

I cope with this math anxiety by listening attentively to the teacher. I always put in my mind that I can do it. I am not afraid to have a low score, what matters the most is that I have learned through my mistakes. By gaining self confidence and practice these help me face my fear in math.

## BEEEd II-B

As a student I also experienced difficulties in mathematics. During my elementary days, mathematics is one of my problems it's because I'm afraid to ask questions in class always, lack of concentration and practice and lack of self-confidence to solve math.

During my high school days, from first year to third year I also experience difficulty in math. The factors are my teachers.

- 1.) They are always mad and saying bad word that's why I'm scared to go to the blackboard to answer their questions it is because I don't want to fail their expectations.
- 2.) They lack of explanation on how to solve those problems that's why it's very hard for me to understand.
- 3.) Difficult to understand what they are saying.
- 4.) Some of them give few examples but when they give and exam it's very far from what they taught.

But when I was in fourth year high school up to college, I suddenly got interested in mathematics, it is because of our teachers who are trying their best and having more patience so that each of us can understand what they taught.

BULB 2-B 09-05-15

3) What do you think are the causes of your math anxiety:

→ Nagimula ako magkaroon ng math anxiety nang ako ay nasa sekundarya dahil sa isang guro namon sa math na imbes itama nyo angganing maling sagot ang ginagawa nyo ay sinasapag nyo kina ko tung kina pitulid sa kasing ng baranatan ko, finkasag nyo ako ng isang patlan selang po hindi ko nakita, ay tumang sagot at din na nyo sagot sa akin tapos para nyo ako binigay ng mato sa mato na para lang mapaki ang kumpas. Para nang bala ko sa kanyang asinawa. Kaya din na ako nahalal sa sumagot sa kanyang na tumang at sumagot sa panya. Hanggang sa napagayon parang bumalik muna yha talat ko sa sumagot sa panya

2) How did you cope with your math anxiety?

→ Tuli-unti ko ng napalis ang ating muth amay dahi na sa  
 ko yugustino ko ng luwa ko muth ko sa mga ng guma ang  
 - lalid ng pagpapal ng gumi ko muth ko hindi naman lalid ng  
 muth luwa ang lalid ng lalid ko sa muth ko lalid ng ng muth  
 kahalos ko tuli-unti ko ang kinatib ng ali ko ko magsama  
 sa ali na kinatib ng ali ko sa ali ng guma ng kinatib.

Most common coping mechanisms used in mathematics by the participants:

1. Utilizing a strategy to learn mathematics by understanding the concepts of problem solving.
2. Coping with anxiety and nervousness by sharing and talking with friends.
3. Studying and working on their assignments.
4. Studying harder.
5. Memorizing procedures and applying these by solving math problems.
6. Listening attentively to the teacher and developing a positive attitude.
7. Studying with peers.
8. Asking the teacher questions if they cannot understand the explanation.
9. Memorizing formulas and using techniques to suit their own learning style.
10. Doing breathing exercises before entering their math class.
11. Being encouraged by the love and support of the family.
12. Reviewing past lessons and asking help from classmates.
13. Preparing or studying lessons in advance.
14. Reading inspirational books.
15. Participating in class discussions to build-up self confidence.

Perceived causes of mathematics anxiety of the participants:

1. Math teachers who were very strict or “terrors”.
2. Math teachers who insulted students.
3. Teachers who did not appreciate or give recognition to the answer of the students.
4. Time pressure during math examinations/quizzes.
5. Teachers who spoke too fast or spoke with a low voice during lectures.
6. Scolded and hit with a piece of chalk thrown at the student by the teacher.
7. Bad experience with their math teacher during elementary days.
8. Fear of failing or getting low grades.
9. Unanticipated test on the first day of class.
10. Negative attitude towards mathematics.
11. Lack of self confidence.
12. Did not like mathematics.
13. Worried about the grades.
14. Hated math.
15. Afraid of making mistakes.

## Conclusions

1. As an entire group, and when grouped according to section, the participants have “moderate” mathematics anxiety. Likewise, the participants have “moderate” mathematics anxiety before and after learning heuristic strategies.
2. There is no significant difference in the level of mathematics anxiety when the participants were grouped according to section and before and after learning heuristic strategies.
3. The perceived causes of mathematics anxiety of the participants were mostly attributed to their bad experience with their teachers in basic education such as “terror” teachers, physical or verbal punishment, as well as time pressure during math examinations/quizzes. Another identified factor was the quality of teaching, like when teachers spoke too fast or spoke with a low voice. This result supported Dodd’s (1999) study that mathematics anxiety can be created when teachers overlook the interconnections between students’ academic performance and their feelings about themselves and the subject being studied. The teacher’s negative attitude in class may likewise cause great anxiety in students. In addition, similar findings by Preis and Biggs (2001) describe a cycle of mathematics avoidance that in phase one, a person with past negative experiences with mathematics tends to have negative reactions to mathematics situations. This leads to phase two in which the person avoids mathematics situations. Mathematics avoidance leads to phase three, poor mathematics preparation, which in turn brings him to phase four, poor mathematics performance. Moreover, lack of self confidence and negative attitude towards math were also perceived as causes of mathematics



anxiety of the participants. Similar result was revealed by Vinson et al. (1997) that mathematics anxiety is directly related to perceptions of one's own mathematical skill in relation to skills in other subject areas.

4. Some of the coping mechanisms in mathematics of the participants were "studying harder", "utilizing problem solving strategies or heuristics", "asking help from peers", "listening attentively during class" and "developing a positive attitude" in math.

### **Recommendations**

Follow up studies using the result as a baseline data and similar group of participants may be considered to establish strong validity of the effect of learning heuristics in mathematics anxiety of the students. Math teachers should be encouraged to be more patient and understanding and should explain lessons well and consider the ability and pace of learning of their students.

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## **Pedagogical Practices to Aid Korean EFL Learners with Language Anxiety**

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### **Abstract**

In current research on EFL, a great deal of effort has been devoted to establishing the role of psychological factors in the success or failure of the learners. Among these psychological factors are affective factors with “anxiety” as one of their sub-categories. EFL students often have difficulty interacting with native speakers in school. Some EFL students avoid interactions with the native speakers because of their frustration or embarrassment at their poor English. Teachers are best placed to engage in effective instructional practices when they can competently select and use high quality resources and/or approaches that have been built around a strong evidence base. Conventionally, the objective of this descriptive study is to determine the Pedagogical Practices to Aid Korean EFL Learners with Language Anxiety of LCSSHS, how and why their teaching strategies help to aid them with their studies. The researchers floated questionnaires to the Korean Students of Lorma Colleges Special Science High School from Grade 7 to 4<sup>th</sup> year High School. The questionnaire used is a standardized test by Horwitz, E. K., Horwitz, M. B., & Cope, J (1986). Results indicated that lack of sufficient input for learning FL/L2 in the environment where the target language is not the first language, and lack of opportunities to frequently process the limited (sometimes filled with errors) input, can cause language anxiety at the output (speaking) stage for ESL/EFL learners. The researchers also formulated lists of pedagogies that will serve as tools to help not only the teachers but also the Korean EFL learners in their studies.

Key words: EFL, Korean students, pedagogies, language

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## Introduction

In current research on EFL, a great deal of effort has been devoted to establishing the role of psychological factors in the success or failure of the learners. Among these psychological factors are affective factors with “anxiety” as one of their sub-categories. There are two general types of anxiety, one of them is called Trait Anxiety and is defined as “a relatively stable tendency to exhibit anxiety in a large variety of circumstances” (Phillips, 1992, p. 14).

Trait anxiety, because of its global and somewhat ambiguously defined nature, has not been proven to be useful in predicting second language achievement (MacIntyre & Gardner, 1991). According to Brown (2000), language anxiety is a kind of state anxiety, and Phillips (1992) thought that a well-known type of state anxiety is test anxiety. Horwitz, Horwitz and Cope (1986) considered language anxiety as distinct from general anxiety and identified three components of foreign language anxiety: Communication apprehension, arose from learners’ inability to adequately express mature thoughts and ideas; Fear of negative social evaluation, has risen from a learners’ need to make a positive social impression on others; and Test anxiety or apprehension over academic evaluation.

Research has shown that anxiety is not uncommon in almost all disciplines of learning. Recently, Cassady (2010) introduced the term *academic anxiety* as “a unifying formulation for the collection of anxieties learners experience while in schools” (p.1). While it seemed that there was some commonality in terms of the nature and consequences of anxiety, the type of anxiety triggered in and suffered by learners from each specific discipline is, to a certain extent, unique to that specific discipline. Foreign language anxiety (FLA) is one unique type of anxiety.

In terms of definition, several researchers have offered definitions of foreign language anxiety. Clement (1980) defined foreign language anxiety as a complex construct that deals with learners’ psychology in terms of their feelings, self-esteem, and self-confidence. Emphasizing the distinctive feature of FLA, Young (1992) defined it as a complicated psychological phenomenon peculiar to language learning. More specifically, MacIntyre and Gardner (1994b) defined Fla as the feeling of tension and apprehension specifically associated with second or foreign language contexts, including speaking, listening, and learning, or the worry and negative emotional reaction arousal when learning or using a second or foreign language (MacIntyre, 1999). Similarly, Zhang (2001) defined anxiety as the psychological tension that the learners go through in performing a learning task. These definitions, in fact, are built around the claim made by Horwitz, Horwitz and Cope (1986) that FLA is “a phenomenon related to but distinguishable from other specific anxieties” (p.129). Horwitz, Horwitz and Cope were the first to conceptualize FLA as a unique type of anxiety specific to foreign language learning.

Based on their clinical experience with foreign language students in university classes during their teaching process, and feedback received from 30 students attending a support group for language learning, Horwitz, Horwitz and Cope suggested that foreign language anxiety should be viewed as situation-specific anxiety arising from the uniqueness of the formal learning of a foreign language, not just a case of general classroom anxiety being transferred to foreign language learning.

This feature made the anxiety caused by foreign language learning distinctive from other academic anxieties. It is possible that students with general anxiety are likely to experience FLA; however, it is not uncommon to find those who are very good at other subjects frustrated in learning a foreign language. Therefore, there must be something unique to the language learning experience that makes some students anxious.

“The fear of public speaking ranks higher than Ophidiophobia and Hypsiphobia – I’d say fear of speaking in a foreign language class ranks higher than all of that.” – Nicholas Boothman; 2014

Nervousness and apprehension experienced by students are one of the factors that affected their minds to think comprehensively. Our alma mater welcomes foreign students, especially the Koreans, with open arms to help them learn and improve their English. Non-English speakers tend to be confused when absorbing newly acquired terms which are given to them every semester.



As we all know, English is the universal language. Which has a great influence; it is taught all over the world under many circumstances. That means people all around the world use it as the bridge that connects them with different tribes and races despite their differences, to communicate and apprehend their discussions.

EFL students often have difficulty interacting with native speakers in school. Some EFL students avoid interactions with the native speakers because of their frustration or embarrassment at their poor English. Teachers are best placed to engage in effective instructional practices when they can competently select and use high quality resources and/or approaches that have been built around a strong evidence base. (cese.nsw.gov.au) As their mentors, they have the responsibility to appropriately give them the holistic knowledge they deserve in order to fully understand and familiarize themselves with the language.

Korean students were given special attention because of their inability to speak our language. Their incompetence to do so made them anxious which reduces their capability to learn and understand the lessons.

In Lorma Colleges Special Science High School, Filipino teachers have their own strategies in teaching our Korean students. They don't simply rely on what the book says, they just teach Korean students the way they teach the Filipino students. Except that they have some special attention.

Sometimes, proctors also have complications in teaching Korean students. It's hard for the learners to understand a language they are not familiar with, just like normal human beings. When we try to learn a new dialect, it's hard to comprehend. Mastering an unfamiliar language in a split second is also beyond imaginable.

Teachers use modules mainly to guide EFL students understand terms easily, from those modules EFL students were given activities. It also measures how the students comprehend the situation. Another method is one on one discussion wherein teachers clarify the lesson where EFL students are having a difficulty.

Conventionally, the objective of this study is to determine the Pedagogical Practices to Aid Korean EFL Learners with Language Anxiety of LCSSHS, how and why their teaching strategies help to aid them with their studies.

### **Statement of the Problem**

The study aims to determine the Pedagogical Practices to Aid Korean EFL learners with Language Anxiety of LCSSHS. Specifically, it aimed to determine the following purposes:

1. What is the percentage of the Korean EFL learners who experience language anxiety?
2. What are some pedagogical practices that teachers use to aid the respondents' Language Anxiety?
3. To what extent can the Pedagogical teachings help our Korean EFL learners to overcome Language Anxiety?

### **Research Design**

Descriptive method was used in this study. This method is an investigatory study with precise and adequate interpretation of findings. The descriptive method includes describing recording analyzing and interpreting conditions and situations that exist. Descriptive method allows you to test the hypothesis concerning the current status of the study.

This method assisted the researchers to determine the relationship of age and gender of the Korean students of Lorma Colleges Special Science High School.

### *Population and Locale of the study*

14 Korean students were asked to answer the questionnaires that were floated. Korean Students of Lorma Colleges Special Science High School from Grade 7 to 4<sup>th</sup> year High School were given the questionnaires. This study was conducted in Lorma Colleges Special Science High School, Urbiztondo, San Juan, La Union.

### *Data Gathering Tool*



A questionnaire was used to gather the desirable data. The questionnaire was distributed to the 14 respondents and was collected by the researchers. The questionnaire used is a standardized test by Horwitz, E. K., Horwitz, M. B., & Cope, J (1986). The questionnaires were consisted of 33 questions that deal with the awareness of the Korean students about the language anxiety together with their performance in class and academics.

#### *Data Gathering Procedure*

Approval to float the questionnaire was presented to the school principal. The questionnaires were then floated to the old Korean students of Lorma Colleges Special Science High School. A total of 14 Korean were asked to answer the questionnaires. After floating the questionnaires, the researchers collected and made an interpretation and analysis of the data gathered.

### **Results And Discussion**

#### *Profile of the Korean EFL Learners of Lorma Colleges Special Science High School*

The study focused on the language anxiety of the Korean EFL Learners of Lorma Colleges Special Science High School which is figured by the researchers namely, gender, age and year level.

The respondent's anxiety in the English language was the study's primary concern because of the important role it provides to the respondent's way communicating and learning.

**Table 1. Data of the Respondents According to Gender**

| Gender | N  | Mean | t-value | t-critical | Decision  | Remarks                                                                                              |
|--------|----|------|---------|------------|-----------|------------------------------------------------------------------------------------------------------|
| Boys   | 10 | 2.95 | 2.43    | 1.99       | Reject Ho | there is a significant difference between the responses of boys and girls on the questions provided. |
| Girls  | 4  | 3.24 |         |            |           |                                                                                                      |

#### *Gender*

Table 1 shows that t-value is significantly higher than the t-critical. Therefore, the null hypothesis is rejected. There is a significant difference between the responses of boys and girls on the questions provided by the researchers. It means that the respondents have different way of understanding the English language.

According to Johnson & Chang (2012), Some ESL students come from cultural backgrounds which encourage males to have strong verbal skills which consequently engulf the female voices within the American classroom. This is clearly presented by Table 1. Boys have significant difference to girls, because they were influenced by cultural background which gives them courage to avoid, eradicate or lessen language anxiety.

**Table 2**

| Year level                     | N | Mean | t-value | t-critical | Decision  | Remarks                                                                                                                          |
|--------------------------------|---|------|---------|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------|
| Grade 7 &8                     | 7 | 3.19 | 4.23    | 1.99       | Reject Ho | There is a significant difference between the responses of Grade 7&8 and Grade 9&4 <sup>th</sup> Year on the questions provided. |
| Grade 9 & 4 <sup>th</sup> Year | 7 | 2.83 |         |            |           |                                                                                                                                  |

#### *Age*

Table 2 shows that the t-value which is 4.23 is significantly higher than the t-critical 1.99 which means that we have to reject the null hypothesis. To come up with the remark: there is a significant difference between the responses of Grade 7&8 and Grade 9&4<sup>th</sup> Year on the question provided. It denotes that there is a difference in the response of the Korean EFL learners if they have longer experience in the language.

According to Muñoz (2006), "if the older learners' advantage is mainly due to their superior cognitive development, no differences in proficiency are to be expected when differences in cognitive development also disappear with age". It means that the older the learner, their thinking ability is a lot faster than the younger learner and that age matter in accordance of having a language anxiety.



Table 3

*Post hoc analysis*

p-values for pairwise t-tests

|          |       | Grade 9  | Grade 8  | 4th Year | Grade 7 |
|----------|-------|----------|----------|----------|---------|
|          |       | 2.818    | 2.868    | 2.898    | 3.386   |
| Grade 9  | 2.818 |          |          |          |         |
| Grade 8  | 2.868 | .6792    |          |          |         |
| 4th Year | 2.898 | .5093    | .8051    |          |         |
| Grade 7  | 3.386 | 7.14E-06 | 3.81E-05 | .0001    |         |

#### *Year Level*

Table 3 demonstrates that the grade 7 has a significant difference with grade 8, 9, and 4<sup>th</sup> year. The grade 7 Korean EFL Learners have significant difference from the answers of the Grade 8, 9 and 4<sup>th</sup> year respondents. It means that the lesser the experience of the respondent the more that they have a strong anxiety in speaking foreign language and does not understand foreign easily.

However, According to Muñoz (2006), in such a context, learners' amount of instruction can be expected to correlate with proficiency scores, although research has shown that the relation of time spent learning a language and the level of proficiency achieved is not always linear (Alderson 1999, Kalberer 2007, see Murphy 2001 for a discussion).

Though, not all level of proficiency is achieved the respondent's ideas about the medium of demonstration is quiet effective for understanding lessons.

#### *Weighted Response*

The respondents said "I never quite sure of myself when I am speaking in my foreign language class.", "I don't worry about making mistakes in language class." It means that most of them didn't mind making mistakes in their language class.

However, "I trembled when I know that I'm going to be called on in language class.", "I am usually at ease during tests in my language class.", "In language class, I can get so nervous I forget things I know", and "I feel very self-conscious about speaking the foreign language in front of other students" they responded. The respondents feel uneasy when they were assessed.

The respondents disagreed upon being confident while speaking in front.  
 They get nervous when they don't understand every word the language teacher says.

#### *Implied Pedagogies*

Lorma Colleges Special Science High School mentors use strategies to impart their knowledge to the students, especially to the EFL learners. English is the major language use to teach students but due to circumstances the Korean EFL learners needs to understand the medium of language in Lorma Colleges Special Science High School.

Because of this, teachers formulate learning components for every 5 basic techniques. These techniques are used as guide for the teachers. These are: *listening* uses compact disc which helps in their speech drills for their *speaking* evaluation, *reading* takes comprehension check, *writing* applies written output, and *grammar* application for real life situations.



Ma'am Subala: *The barrier for Korean is the English. But for science subject mostly they can deal with numbers, performance base. So, you set first some example, from that example they will analyze. And then most likely it is a question and answer strategy. I let the student ask and I will answer.*

Sir Villanueva: *Bilingual Approach. Ano yung bilingual? Translation syempre. We translate it in English. And then one of the best features of ESL sa Lorma is immersion of the students to the mainstream. After attending sessions they join the mainstream to their assigned classroom. They could apply whatever they have learned. Tayo lang yung may immersion. Nanonotice naman na after several weeks eh magaling na sila magenglish.*

Translation: Bilingual Approach. What is bilingual? It is translation. We translate it in English. And then one of the best features of ESL in Lorma is immersion of the students to the mainstream. After attending sessions they join the mainstream to their assigned classroom. We are the only school applying immersion. They could apply whatever they have learned. You can notice that after several weeks they are good in English.

Sir Salazar: *I give them maximum consideration with the lessons I taught them. After they understand what to do I give them enough time to finish their hands-on activities, so that they can think of what to do carefully. Then I'm giving them special attention for their other queries.*

Sir Gangney: *Una kasi ang priority ng teacher yung pangkalahatan. So, yung first na strategy mo, ipaintindi mo muna sa mas maraming tao. Pagkanaintindihan na nila, pupunta ako sa upuan nung Korean, tinatanong ko kung ano ang hindi nila naintindihan. And then afterwards, sasabihin rin nila yung hindi nila maintindihan dun ko iexplain one on one situation lang mangyayari.*

Translation: First priority of a teacher is for the whole class to understand. So, the first strategy is teach them all first. When the others understand, I go to where the Korean student is seated, and then I'll ask what they didn't understand. Afterwards, they'll tell their problem and there I'll explain it to them one-on-one.

Ma'am Velario: *I treat them equally to the Filipino students, since mathematics is more on numbers it is easier for them to understand.*

Ma'am Chan: *I treat them same with the other students and I only use simple English words when communicating and imparting the lessons both English and Values Education subject. Then I evaluate their understanding through assessment exercises.*

## Conclusion

According to Abderrezzag (2010), Teachers should realize that language learning, and particularly oral production is a potentially stressful situation for some students, and that the tension and discomfort related to language learning call for the attention of the language teaching profession. It means that we should, therefore, give considerations to the respondents. It is also hard for them to manage their new environment especially they are not a native citizen of the country. This study is a guide for the Korean EFL learners and teachers of Lorma Colleges Special Science High School, to accomplish a common goal which is to educate the EFL learners.

In conclusion the lists of pedagogies formulated are tools to help not only the teachers but also the Korean EFL learners in their studies. Since, Lorma Collages Special Science High School is the only school offering EFL/ESL Program, it is only wise to use these lists of pedagogies as learning strategies.



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## Ilocana For All Seasons: Modern Image Of Ilocano Women

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### Abstract

Change is inevitable and certain factors contribute to these changes. Before, people lived simpler lives but now, people seem to live their lives going with the trends. Stating the obvious, there is a difference on how women act, dress, how they were treated or simply on how they lived from the past and in the present. In terms of clothing, they wore more conservative clothes back then. This study aims to differentiate further the past from the present. It aims to know the divergence in women in the old days and women forthwith, as well as the factors that contributed to these transformations and its reasons. The researchers utilized interview in gathering credible information in determining the various roles and lifestyle of Ilocano women. It was conducted in the Northern part of Luzon in the Philippines called "Ilocos" specifically in La Union. The Ilocanos are the third largest Filipino Ethno linguistic group which makes it possible to conduct a research integrating the empowerment of Ilocano women. This research is beneficial to women, especially to the Ilocanas. It clarifies the roles of women and the modern image of an Ilocana as part of the Filipino community. With the given responses of the participants, themes were identified in order to determine the changes among the various roles of women in an Ilocano culture. Their responses also indicated the values that every Ilocana possess. The problems encountered by the Ilocano women were classified according to their various roles in the society. The researchers came up with recommendation that focuses on gender equality and promoting an egalitarian Ilocano community.

Key words: Ilocano, Egalitarian, image, women and culture

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## Introduction

As a person, you don't have a complete identity if you are not part of an ethnic group. As dictionaries would define, an ethnic group is a socially-defined category of people who identify with each other based on common ancestral, social, cultural, or national experience. In general, people are classified by gender, citizenship or ethnicity. The Philippines is an archipelago with an enormous population. The Ilocano or Ilokano people are the third largest Filipino ethno linguistic group. Their culture is far different from the practices of other indigenous groups which means that they are rare in the state of the Philippines. Most of the Ilocanos are Christians and a part of their culture is their inborn attitude of being conservative and religious. It is just to have such ethnic groups be put to existence for people to identify this nation and to classify or separate different types of culture. Culture is known as the beliefs, way of life, art, and customs that are shared and accepted by people in a particular society. All countries have their own and different cultures practiced. Though some countries are influential and that's why their cultures are passed to other countries.

While it is true that Culture is something that should be passed and not eradicated, change is inevitable and certain factors contribute to these changes. For instance, before, people lived simpler lives but now, people seem to live their lives going with the trends and high technology. Stating the obvious, there is a difference on how people, specifically on how women act, dress, how they were treated or simply on how they lived from the past and in the present. In terms of clothing, they wore more conservative clothes back then. Now? They seem to have a shortage in cloth as seen in the length of their clothes and they apply thick make-up to their faces. There is this term which we call "The Barbie Effect" which greatly affects the way the society thinks when it comes to the ideal appearance of a person. When it comes to leading, they weren't allowed to run for candidacy. The stereotype of a leader is a male and when people see females as leaders, they formulate doubts in their heads. In addition to that, whenever a male and a female is up for elimination in a certain field, the male often gets picked.

Before, women weren't allowed to work outside their homes. They preferred to stay at home, do household chores and were contented on being housewives and mothers as it was part of tradition. Today, they experience more freedom in choosing their jobs and other fields and they are more career oriented than before. This only proves that women are also capable of what men can do – Leadership and Power. And there are certain studies wherein it is proven that the 21<sup>st</sup> century women is way different from women before.

With that, this study aims to differentiate further the past from the present. It aims to know the divergence in women in the old days and women forthwith, as well as the factors that contributed to these transformations and the reasons behind it. The researchers utilized interview in gathering credible information from certain Ilocanas – a mother, a student/ teenager and a public servant in determining the various roles and lifestyle of Ilocano women. It was conducted in the Northern part of Luzon in the Philippines called "Ilocos" specifically in La Union. The Ilocanos are the third largest Filipino Ethno linguistic group which makes it possible to conduct a research integrating the empowerment of Ilocano women. This research is beneficial to women, especially to the Ilocanas. It clarifies the roles of women and the modern image of an Ilocana as part of the Filipino community. With the given responses and results of the participants, themes and recommendation were also formulated.

## Statement of the Problem

The research entitled "Ilocana for All Seasons: Modern Image of Ilocano Women" goals are to answer the following queries:

- a.) What are the changes that occurred within the Ilocano women before and today?
- b.) What are the factors that contributed to the changes?
- c.) Why did the early Ilocano women changed their way of living into a modernized style of living?
- d.) What is the role of women in our society today in terms of:
  1. responsibility;
  2. authority; and
  3. parenting



### *Participants*

The research study was conducted with the Ilocano women and obviously, there are various kinds of Ilocano women. To name some we have students, professionals, mothers and many more. We focused on female students, professionals, and mothers of this generation. They were chosen to be the participants of the said research study because as time passes by, the image of women before has now changed into a more modern kind of woman today. With this, the researchers would be able know the reason why the changes occurred and the outcome or the Ilocano image of women in today's generation. In addition to that, the researchers chose Ilocano women for them to start from their own ethnic group.

### **Data Gathering Procedure**

The interview was utilized to the Ilocano women - students, professionals, and mothers for collecting and gathering their own opinions, observations and assessment regarding the transformation of the image or the characteristics of Ilocano women before and now. They've also used recording equipment like tape and video recorders.

### **Results And Discussions**

#### *Seasons Of Ilocano Women*

This study has four aimed questions to be answered. Basically, it aims to (a) identify what were the changes that occurred within the Ilocano women before and today, (b) What were the factors that contributed to the identified changes, (c) What influenced the women to change and lastly, (d) What now are the roles of women in the society based on their Responsibility, Authority and Parenting. With all the credible data gathered, recorded, transcribed, analysed, interpreted and defended the researchers came up with these results:

#### *Definition Of Women In General*

Stating the obvious, men are different from women in a lot of fields. Women have different roles to portray and these roles are different from the men's. Despite this fact, that doesn't mean that they deserve lesser rights. As stated by Jean Lau Chin, a Professor of Adelphi University in New York (2011):

"There is much to suggest that feminist leadership styles are intentionally different—more collaborative and transformational compared to men."

Despite women taking the lighter and easier side of leadership, this doesn't mean that their outputs and the results of their efforts have a lesser quality than those produced by the opposite sex. Typically, when the term "Household" is heard or read, its stereotype would be "Woman" or "Female". From here, it is a fact that the immediate definition of a woman through the eyes of the majority is someone who is supposed to nurture a good environment through their love and care but even though this is established as a truth, "We need to transform our views of leadership to promote more robust theories and diverse models of effective leadership." as cited by Chin. The researchers interviewed different kinds of women, specifically Ilocanas and they themselves defined women in general as someone who is Strong, Fierce and most especially, Caring.

But in as much as majority of the definitions were positive, there were also negative perceptions from the respondents. Basing from the data, the positive comments were from professionals and mothers. To simply put it, it came from adults. Having said that the answers came from adult respondents, it is an acceptable interpretation that those were their answers for the reason that, in their time, women possessed more positive qualities than negative ones. But with the impact of technology today, it affected women's personalities and their ways of thinking.

The negative perceptions came from students whose ages range from 12-14. Considering the ages of these women, they are not yet exposed to reality and still lack experience. They basically point out the competitiveness of a woman because of their empowerment and the effect of high technology. :

*Maria (Student): Women sometimes look down on their other fellow women but today we stand brave and strong.*



### *An Ideal Ilocana*

#### *A. Strength*

With the stated positive and negative definitions, the characteristics of their ideal woman, specifically an Ideal Ilocana is focused on their inner personality than on the physical appearance. For the interviewees, a woman should have awareness on how to manage things especially for household chores. Strength is one of the most mentioned character that should be possessed by an Ilocana.

For the respondents, an Ilocana should be strong because first and foremost, we are all blessed with equal strength in order to survive living amongst humankind. But as for women, we are strong because we can stand alone. Women are independent, in a way that we need any one who can sustain ourselves because besides strength, women has also resourcefulness and wit as a character. With strength women are able to lead and with leadership, they are able to make a move, make a change and eradicate the gender bias that exists.

"We often perceive traits associated with leaders that may not have much with to do effective leadership; these characteristics are often mistreated by leaders themselves. Terms like "he looks like a leader; he is presidential", charisma, and visionary are all terms used to define leaders." (Women and Leadership: Transforming Visions and Current Contexts Jean Lau Chin, Professor, Adelphi University, 2011). But people tend to ignore the fact that women can be charismatic and presidential too, because adjectives and stereotypes are just labels and living with labels is not an ethical way of living.

*Elizabeth (Professional): An Ideal Ilocana is somebody who has the strength as what I have said awhile ago. A woman who has strength in character and empowered enough in her own rights.*

*Aireen (Mother): The ideal Ilocano woman is someone who is strong, determined, and systematic. The ideal kind of woman is also fierce. She knows how to fight for her rights and she's also dignified. And she also has her own values of leadership, strength and she's into making a difference.*

*Andrea (Student): A woman should have this fighting spirit. To not be afraid, she should be smart and sometimes, she should let her feelings glide a little bit.*

#### *B. Skill*

In as much as carpentry isn't a woman's forte, it does not mean that we can't build a house or other things produced by men themselves. Women can actually build something better which is a Home. In terms of skills, women can do all sorts of chores, from working hard in the office to sustain the family, cooking food for the whole family, preparing the necessary things needed, budgeting the family expenses to raising, caring and giving unconditional love to each family member.

*Kate (Student): Basta mabait, wala naman sa looks.*

*Aleja (Student): I want a simple woman that can cook.*

*Aireen (Mother): She should know how to handle money well. In terms of budget and expenses.*

#### *Changes That Occurred Within The Ilocano Women*

Quoting Jeana Wirtenberg from the U.S Commission on Civil Rights (February 1978):

"There has been an upsurge in interest in women's occupational development. It is now recognized that women's occupational development is unique in many respects, and cannot be treated merely as a conorally of mens."

It mainly proves that women's empowerment & economic development are closely related in one direction. Development alone can play a major role in driving down inequality between men and women and in that case, empowering women may contribute to the general development. Though women have progressed in a number of



spheres, in a wider perspective, the situation remains grim. Perhaps this thought urged the women before to change and be who they are today.

Majority of the answers of the interviewees regarding the changes that have occurred, mainly revolved on the empowerment that. One of the frequent change the interviewees observed and answered was on how career-oriented women have become. Instead of them settling down and hiding their skills inside the four corners of their houses, they are now open to skill-related and outside tasks for them to prove their abilities.

On the other hand, an obvious negative change they have mentioned is the eradication of their conservativeness or the attitude of being a “Dalagang Pilipina”. Their answers mainly revolved on how empowered women have become and its positive and negative consequences.

### C. Positive Changes

Back in the day, women were perceived to be household wives only. They weren't allowed to experience the outside world and because of this, they have developed a mindset not to fight for their rights, expose their talents and skills, and they settled on being plain housewives – managing and taking care of the house and the whole family since it was the man's responsibility to go out and look for their basic needs. Women were also considered inferior if they venture into an occupation and career employment before.

However, Ilocano women nowadays are now becoming assertive with their rights and as time had gone by, their empowerment kept on continuing. At this point of time, women are already living by the thought that they are now capable of what men can do. Careerwise, Ilocano women are now occupying positions of power and authority which makes them respected. They had even invaded the field of Politics like, Corazon Aquino who is the first woman to hold a position in the government as a President in the Philippines and in her reign, the country experienced success and democracy. Which is a proof that women changed for the better and levelled up to be with the same level with the male gender.

*Elizabeth: The image of an Ilocana before is one who is inferior over the other. Inferior in terms of Occupation. Before, women are only known to be skilful in the house, so they are only for the house but now, I cannot go out from the word “Empowerment” of being a woman. They're empowered in terms of good choice of a career. So career wise, they can do what men can do. Women can be proved to be a good leader, very much respected in their position in the society. Gone were our front liners of positive changes.*

*Aireen: Women before are mostly sheltered. They just stay at home, tend to the needs of family. They tend to be teaching their children and takes care of them. Women of today do not just stay at home. But they also have their careers. Both are active in family, in careers and also active in their social lives. Of course before, women are really enclosed into something that would not bear their back, their arms of their legs. Positive changes in Ilocano women, they are now open to changes. They embrace changes in their life, they are now empowered. They know how to fight for their rights. They have a voice, they are able to bring out something, what they have in their minds. They are able to share what they know and they fight for whatever they think is right. They no longer shelter themselves into the four walls of their home. But they try to get out from it and learn new things from their environment.*

*Maria: They were very conservative before and they were very hidden like they didn't have the chance to show themselves or show what they can do but now they're stronger. They act as leaders now, they act very brave and they stand for themselves.*

*Aleja: The image of woman before is like “mahinhin” (demure) like a “dalagang Filipina” and now they're stronger, tougher, fiercer!*

*Andrea: Well, I believe women are classy but today, with this millenium, we could see that women are wearing this shorts and stuff with the “Swag” thing.*





*Kate: Mas kinilala na ang women na hindi lang slave, hindi lang decorations sa boys, sa house. Naging independent. (Women at this point of time are now known to be independent. The stereotype of woman now is not Slave and Decorations for boys and for houses anymore.)*

#### *D. Negative Changes*

Despite how great women, specifically Ilocanas have become today, the interviewees also observed negative changes that have occurred. It was on how they act now because of their pride and empowered mindsets.

The gap of change between the experiences of women before and now is quite enormous. Based on the maintaining power on women's experiences, women suffer more complications and intervention towards birth, labor and mental strength. Therefore this made the people think different on the negative and positive sides of women. Based on what they are seeing today, women are really into showing what they have. As the common saying goes which is practiced quite often by most women: "If you have it, flaunt it." Women flaunt what they've got because they think they can get men to pay for everything. Due to their empowerment, they tend to abuse it and use it in an improper and unethical way which makes their qualities of being a woman lesser. In addition to that is the excessive exposure to high technologies and influence by others because of the trends we tend to imitate. In as much as we need to be with the same level with the other countries for us not to be left out, once this characteristic continues, it consequently becomes a negative advantage for people especially women because instead of them being having morality and simplicity as a character, they tend to please the mass and disregard their own true identities. With that, the habit of Overthinking and Pleasing other people leads to the eradication of a woman's true identity.

*Elizabeth: In terms of their own beliefs, their own principles so it's being swayed by the impact also of technology, media and globalization.*

*Aireen: For today, women are into flaunting anything they have. If you ask things, they say "If you have flaunt it." They tend to go beyond what should be like in the way they talk, it seems like some would go for too much. For example the use of words, they tend to be using street words like "Bad Words" at the same time they go in arguments already. But before, you don't see a woman who argues and now it seems like speech is something that they would fight for. That would be something negative and the way they dress. Once you are free to choose your clothes, to experiment or to go for modernization. They also have to flaunt but sometimes, you have to put limits as well as dress accordingly.*

#### *Reasons And Influences Behind The Changes*

As what the researchers could internalize, there are a lot more positive changes than negative changes and these positive changes focus on the career or job orientation of women. These are the factors that contributed and affected the transformation of Women:

#### *A. Surrounding*

"Women's career development is affected by the cultural context of the workplace. The workplace has always been, and remains, a male-dominated and male-defined context. Masculine traits help women advance in the workplace. For women to be successful in their careers, they have been required to conform to this male model and emulate the male cultural standards" (Bierema, 2000).

Having this in mind, since the environment in which women work has an effect on their development, it is an accepted conclusion that the way of thinking of women contributed to their transformation. For the reason that it is typical that when we see a role model, we tend to imitate their habits for us to achieve our desired success as well. Since our thoughts run our lives, it greatly affects our performance and for women to get going, they need a motivation to work harder and perhaps the presence of men as well as the gender bias which existed urged them to change and prove something.





### *B. Technology*

Typically, with the society we are into today, Technology ranks first in the list of the reasons why people change. Though from the perception of the Ilocana interviewees, there are various reasons behind the evolution of women. For us to develop a healthy self-image, we need to be soaked into the pail of education in order for us to know what we're supposed to do and be aware things. For education to be well achieved, technology is one of the requirements. Hence, it is a fact that women soaked their attentions to technology because in their perception, it would help them gain knowledge. Despite the gain of knowledge, Innocence and Conservativeness was lessened.

### *Role Of Women*

Without a doubt, women are indeed very important in our society. Not just because they literally contain the future in them which is a child nor they're the ones who knows how to manage and handle things, especially when it comes to household chores. A woman has many roles in our society and somehow it differs in various fields.

### *A. As A Mother*

With regard to parenting, the role of women is to give unconditional love to her children. A woman especially mothers play every role in their children's health, education and complete well-being. They serve as the first teachers of their own children whenever before they enter education. The mother has to take care of her children in sickness and well-being. A woman has to have the ability to mold and discipline her children the way a woman does. Unlike men, women shouldn't have violence as a habit of disciplining. In addition to that, mothers act as role models to their children and children are the protégés of their own parents. What they see are being imitated throughout their journey and what they learn from their mothers will be carried out until they become adults.

### *B. As A Student*

In terms of Responsibilities, women are packed with it. A woman's primary role is to provide a comfortable home for her husband and children. A home in which it is safe and sound for the whole family. A place wherein the children can grow and flourish until they can stand on their own feet. It is her responsibility to develop the relationship of the family to become a happy and harmonious one. While it is true that men should be the ones who should build or start it, a woman's role is much more essential when it comes to those fields. For the reason that, she is the one who improves it or atleast maintain its situation for the whole family. In regard to women without families yet, it is their responsibility to finish their studies since it would be the determining factor for their future careers. Each and every child's mission is to pay back their parents for all the efforts they've imparted to their success and a way to pay them back is to be responsible and be focused on their studies, rather than just plainly mingling in their social lives.

### *C. As A Professional*

At the same time, a woman's Authoritarian role is what she handles as her career. The authority of women is based on what position she has in a certain field of work. Authority of women is also connected with her family. While it is true that a stereotype of a leader and a disciplinarian is a man, a woman has to be firm and disciplined for her children as well for them to follow her and be inspired because of her. She needs to have the power and strength to discipline her family rather than it being the father's role only.

It is definitely true that being a woman is not an easy role, and despite this fact, within it contains a good and ethical reason why women should be idolized by many and should be considered very essential to the society and the world. Because besides God, without women, people wouldn't exist. That is why, women have with them the future of the world.

### **Conclusion**

Basing it from the results the researchers have come up based on the data from the respondents, this study concludes that change amongst the people in our society is inevitable. Whether it is affected by time, modern technology and other elements that are believed to alter the traditions and culture of people. Women of the Ilocanos' lifestyle had changed through time and this study had observed that it was caused by numerous amounts of consequences that led into the state presently. The researchers utilized interviewing specimens



whose characteristics matched their criteria in order to congregate credible data that established facts about this said study.

The result of interviews conducted upon Students, Professionals and Mothers consider Ilocana women as strong, outspoken and they always stand by their firm convictions of Truth, Justice, Peace and most of all Ilocano women are not afraid to speak out their minds and consider men as their equal.

Furthermore, this study confirms that not only Ilocano women had changed through time, before and after, but we also established women empowerment, promoted a modest act of gender equality and call attention of what they have to fight for. As this study aimed to determine the changes that had happened among the Ilocano Women, we confirm that this study is a success. Glory be to God!

### **Recommendation**

The researchers recommend that Ilocano women must know their rights and should stand up for themselves. They should empower themselves and practice their rights, and they must realize the importance of their role in society and must contribute to the welfare and interests of the community in which they live in. Women must play their role in society so they can make a difference in the lives of each members of the society. Furthermore, we would want to recommend that even time and influences may affect the women of the Ilocanos, they should still remain and get a hold of their roots and where they came from. They should still know who their true identities are despite both positive and negative changes that had or will ever happen.

As for further implementation in keeping the state of these Ilocano women, we suggest taking advantage of modern technology and social media sites as platforms in keeping their roots strong and sturdy. We can use social media sites to promote empowerment among women whatever culture, race, and other aspects that subdivide women into labels that are not meant to perceive so. We also recommend annual gatherings or seminars that involve activities such as allocation of ideas expressed through writing or speaking. Activities that converge women of all ages, culture and races, into a beautiful mound of humanity.

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## Prevailing Concerns of Grade School Pupils

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### Abstract

The Grade School Christian Living and Good Manners and Right Conduct (CL/GMRC) teachers of the School of Saint Anthony, Lagro, Philippines conducted a survey to determine the prevailing concerns of Grade School pupils.

This research sought to understand the concerns of Elementary pupils in the Family, School, Friends, and Media perspectives that may possibly affect them. These serve as ways to determine how to approach the pupils and be able to identify methods on how to teach them cope, solve, and deal with their concerns as Grade School pupils. The participants of the study were 115 Preschool, 461 Lower School and 532 Middle School pupils from School of Saint Anthony. The survey aimed to discover the things that made the Elementary pupils happy and sad, and what their interests are and focus during their Elementary years. In general, this study investigated on the prevailing concerns that were bothering the Grade School pupils at present.

It can be derived from the findings that pupils were greatly affected by the following factors: first would be the atmosphere at home, followed by the school factors, then relationship with friends, and media influence which they found difficult to deal with. In the Family Perspective, some of the concerns of the pupils included parents who were too busy and had no time for them; had siblings that tease them; sick family members, strict parents, parents who were away from them or in abroad, and parents' relationships. In the School Perspective, on the other hand, pupils' concerns included being bullied by classmates, receiving low grades, experiencing difficult subjects, doing several home works and requirements, and allowance. Some of the views raised in the perspective of Friends, included not having time with friends, friends ignoring them, being bullied by friends, being rejected by them and not having true friends. Lastly, in the Media and other perspectives, small percentage was obtained from pupils' concerns, such as pet-related, physical appearance, having and playing with gadgets, status in face book, and money.

Keywords: Family, Friends, Concerns, Media, and School

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## Introduction

Anderson (2015) stressed that the Elementary children are a unique group. They are creative, fun and independent, but they can be challenging, especially in the classroom.

One of the means to understand the ways of living of people is to determine their concerns and to work on how to deal with these concerns. Young children are often noted as persons that speak the truth most of the time. There is a notion in the Philippines, that children do not know how to tell a lie. In case they will be asked about the problems they face at present, it is believed that probably they will be honest with their answers.

From the responses gathered from these young children, teachers can seek ways researching and discover methods and approaches on how to handle pupils' concerns and at the same time, make the pupils aware on how to handle these concerns. The researchers of this study, who are also Elementary teachers, are interested to find out the major and common concerns of the Elementary pupils from different levels and suggest recommendations to better understand and guide Elementary children with their prevailing concerns in life.

## Statement of the Problem:

This study dwelt on the prevailing concerns of the elementary pupils. This research attempted to find answers in the following questions:

1. What are the major concerns of the pupils per department?
2. What is the general concern of all the Elementary Pupils?
3. What is the recommended method applicable in guiding the pupils in each grade level deal with their prevailing concerns in life?

## Methodology

### Research Design

The researchers used the descriptive design in the form of survey.

### Participants of the Study

The participants of the study were the Grade School pupils of the School of Saint Anthony from Preschool to Middle School.

Table 1 presents the frequency distribution of the participants per department.

Table 1. *Distribution of Participants per Department*

| Department | Middle School (Gr.4-6)                   | Lower School (Gr. 1-3) | Preschool |
|------------|------------------------------------------|------------------------|-----------|
| Frequency  | 523                                      | 461                    | 115       |
| TOTAL      | 1099 Pupils in the Elementary Department |                        |           |

### Research Instruments

The instrument used in the study was paper and pen survey.

### Data Gathering Procedure

The CL/GMRC Department in coordination with the Spiritual Adviser and Parent Council Executive Board of the School of Saint Anthony conducted a meeting to brainstorm about the implementation of a research about the prevailing concerns of the Elementary pupils. The teachers made the pupils enumerate their major concerns in school, at home, and others. Results are gathered and the data are collated to make a summary.

### Data Analysis

The data obtained in this study were carefully tallied. The Excel program is utilized to show frequency counts and percentages. Tables and charts were used to show graphic comparison of data gathered.



## Results and Discussion

Table 2. Comparison of Percentage Distribution of Responses (Concerns) in Preschool and Lower School

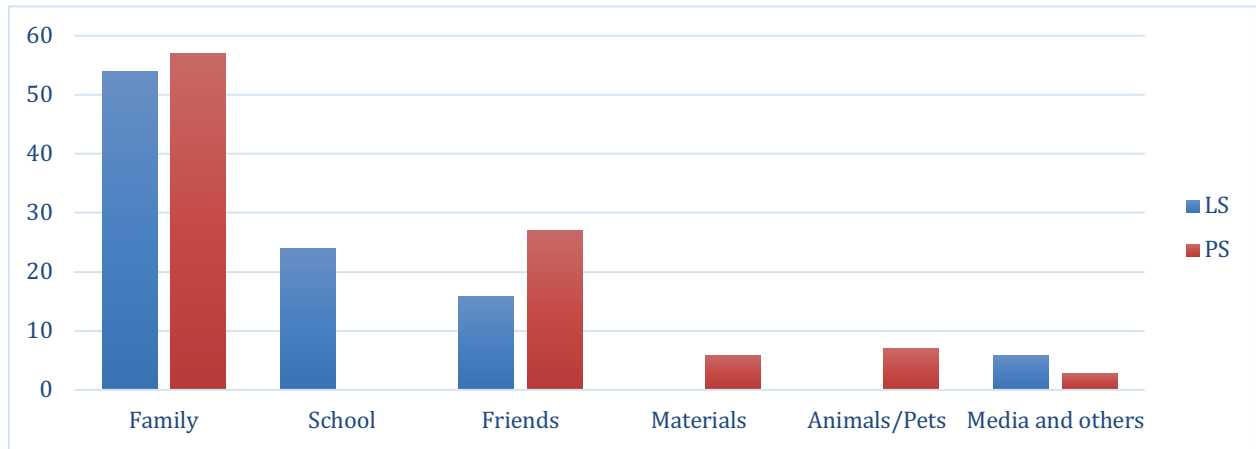


Table 2 presents a comparison of responses (concerns) in percentage of the Preschool and Lower School departments. It can be gleaned from the data that the major concern of the pupils in both departments is Family and factors under family include having busy parents, siblings teasing one another, a sick family member, and angry parents. Friends came out as the second prevailing concern of the pupils, and situations under this encompass having no time to talk to each other, ignoring one another, and having quarrels with them. The Media and other concerns, also known as the modern concerns would include Facebook, fear in zombies, supernatural things, and money. A small percentage of the Lower School pupils consider some factors in school, such as having low grades, difficulty with the subjects, and bully classmates as their concerns at present unlike the Preschool pupils wherein none of them made mention of School concerns. The concerns in Preschool dwell on material things such as toys, gadgets, internet games and animals/pets which serve as their companions. The pupils worry once they think about the death of a pet, its mood, and health condition.

Table 3. Comparison of Percentage Distribution of Responses (Concerns) in Middle School and Lower School

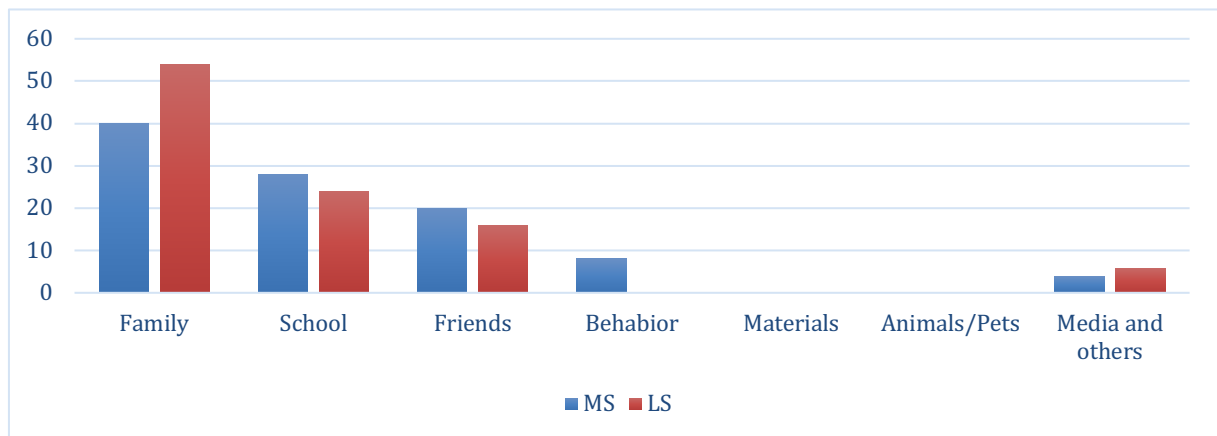


Table 3 shows the comparison of responses (concerns) in percentage in the Lower School and Middle School Departments. The major concern of the pupils in both departments is Family, and sample situations include parents working abroad and having strict parents. School Factors (Home works and requirements), Friends (having no true friends and bullies), Media and physical appearance also emerged as the common concerns of the pupils in both departments. Behavior came out as one of the unique concerns of the pupils in the Middle



School wherein laziness, dishonesty, low self-esteem and being stressed are disclosed by some of the Middle School pupils

Table 4. *Percentage distribution of Results in the Grade School*

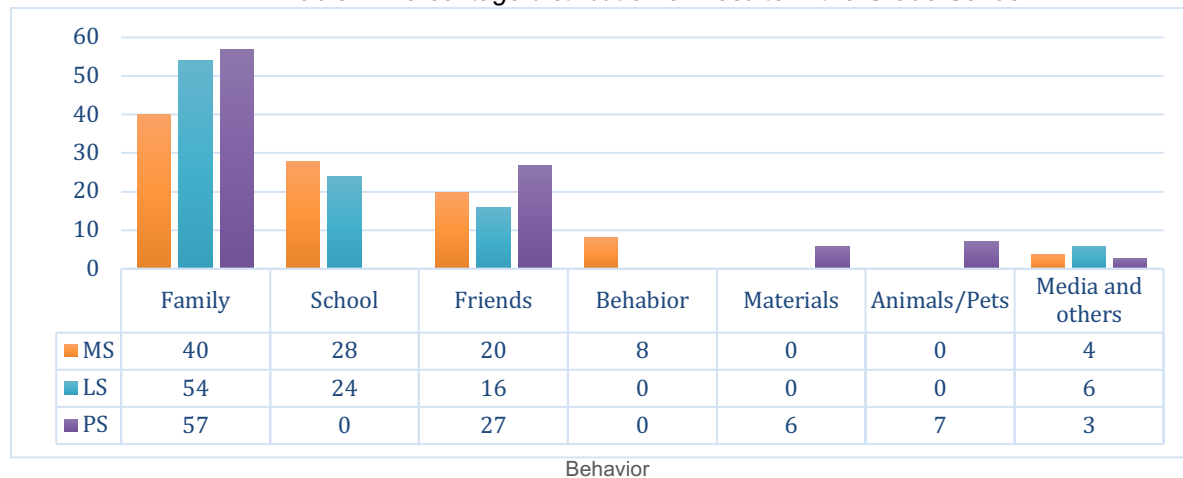


Table 4 shows the overview of the percentage distribution of the responses in Preschool, Lower School and Middle School Departments. The table clearly shows that among the common concerns of the pupils, Family factors emerged as the highest, followed by Friends, and Media and others. While the unique concerns of the pupils are the behavior, materials things, and animals/pets.

Table 5. *Frequency Distribution of Respondents in The Grade School Department*

| Frequency Distribution of Respondents in The Grade School Department |               |              |            |       |
|----------------------------------------------------------------------|---------------|--------------|------------|-------|
| Concern                                                              | Middle School | Lower School | Pre-School | Total |
| Family                                                               | 209           | 249          | 65         | 523   |
| School                                                               | 146           | 111          | 0          | 257   |
| Friends                                                              | 105           | 74           | 31         | 210   |
| Behavior                                                             | 42            | 0            | 0          | 42    |
| Materials                                                            | 0             | 0            | 7          | 7     |
| Animals/pets                                                         | 0             | 0            | 8          | 8     |
| Media and others                                                     | 21            | 27           | 4          | 52    |
| Total                                                                | 523           | 461          | 115        | 1099  |

Table 5 presents the frequency distribution of respondents per Department in each Category/Concern. Family and Friends serve as important factors in the lives of the Elementary Children. This is relevant to the idea of Mazarin (2015) emphasizing that some common issues among Elementary children include bullying, relationship with parents, poor social skills, and rejection.

## Conclusions

The researchers have concluded that the major concerns of the pupils revolve on family relationships and spending quality time with family members emerges as a significant factor among the Elementary children. Another common concern of the pupils that worry them is their relationship with their friends, who they feel are not





being true to them, or are dishonest, and would often quarrel with them. A small percentage mentioned media, physical appearance, social websites, and gadgets as their concerns.

### **Recommendations**

The researchers would like to recommend the following to make all the concerned people in the development of the pupils address the prevailing concerns of the pupils.

#### *Regarding Family:*

Based on the findings, the family plays a significant role in addressing the prevailing concerns of the Elementary pupils. Time is an essential factor for parents to better understand the present thoughts and feelings of their children. Spending quality time with the family is found necessary. Time allotted for family members should be well-spent and harmonious relationship should be evident. These can be achieved through constant communication among family members.

#### *Regarding Friends:*

Proper advice should be given to children on handling emotions and situations that deal with values, such as honesty, trust and love.

#### *Regarding School:*

The guidance of the teachers, administrators, counselors and other people involved in the education of the Elementary children must develop a program that will guide the children in their decision-making. At the same time, the teacher must be mindful of the activities of the pupils and aware of the children's experiences in school and at home. They must encourage teacher-parent collaborations in dealing with the concerns of their children.

#### *Regarding Media:*

The parents must monitor the activities of their child/ren at home and must set rules for them to follow to become more responsible. They must be encouraged to be open-minded and expressive with their thoughts and feelings.

In addition, the parents must properly educate their children about the use and effects of media. They must also expose their children to real-life experiences to enable them to handle properly varied concerns in life.

#### *Regarding Other Concerns:*

The significant people in the life of an Elementary pupil should find time to collaborate with him/her to help him/her develop an understanding on how to face different life experiences as he/she grows in a society.

Moreover, continued research must be conducted considering that the concerns and needs of pupils vary through time. Approaches must also be updated to suit the different needs of children.

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## **Developing an Institutional Research Records Management System (IRREMS) for the University of Mindanao Research and Publication Center (UM-RPC)**

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### **Abstract**

This study focuses in developing a computer-based information system that helps the Research and Publication Center of the University of Mindanao in managing the institutional research records of the University's teaching and non-teaching personnel. It explores on the software requirements of the Center in order to efficiently store research-related data and to conveniently retrieve pertinent reports that the office needs to provide. It then describes the proposed software named Institutional Research Records Management System or IRREMS. The software provides a systematic way of managing records of institutional researches conducted by both the teaching and non-teaching personnel of the University. It keeps track of researchers' information, as well as organizes the researches in a way that allows for easy access and retrieval through the use of search keywords. The study presents the requirements specification, software process model, software design, and the software development methodology used to create the technical output, which was successfully deployed in the Center.

Key words: Records management, information system, software development

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## Introduction

As one of the prime academic institutions in Mindanao, most especially in the Davao region, the University of Mindanao (UM) has placed a lot of emphasis in developing its pool of faculty members through its faculty research program. This led to the establishment of the UM Research and Publication Center (UM-RPC) whose primary task is to encourage the faculty members to conduct research, as well as to assist them during the conduct of their respective researches.

As the UM-RPC continues its mission of promoting a culture of research in the University, it adopted a manual-based information system for keeping and tracking the records of research papers submitted to the center. These records have grown in number as years go by and problems have started to arise as to the efficiency of information retrieval and report generation. Manual-based monitoring has proven to be inefficient since the center, currently, could not provide record-tracking information on the huge number of research papers available in the office.

This study aims to provide a computer-based information system for the systematic record-keeping of all research papers under the possession of the RPC. This will be called UM-RPC Institutional Research Records Management System or IRREMS. This software will also assist the RPC in data analysis, and report generation so that the center can provide timely information about the performance of the various components of the University in relation to research endeavors.

The Institutional Research Records Management System (IRREMS) will handle the management of the institutional research documents that are under the possession of the UM-RPC. Management activities include adding new research document records, and updating and viewing existing records. The viewing mechanism allows the user to view both abstracts and full research documents in PDF. The system will also employ a search mechanism that enables users to search documents using various keywords such as title, author, and departments.

## Conceptual Framework



Figure 1 - Overview of IRREMS

Figure 1 illustrates the basic framework that IRREMS is based on. It is a records management system that allows user to add, edit, and view various types of data relevant to institutional research records. An example of data is the Author's data which consists the basic information of the researchers taken from the researcher's information sheet.

Aside from data management, IRREMS provides a mechanism for generating important reports that can be exported to MS Word for formatting and printing. It also allows users to view abstracts and full research papers. It further provides a feature where users can monitor the status of records through user and transaction logs.

## Statement of Objectives/Problems

Generally, the researchers aimed to help the RPC in managing its records through the development of a computer-based information system named IRREMS. In doing so, these specific system objectives are established:



- To provide a secured database in storing records of research documents;
- To create a user-friendly interface with easy navigation and usage;
- To provide a mechanism for fast and accurate generation of pertinent reports;
- To enable users to read completed research document abstracts and full papers; and
- To monitor status of research papers in order to ensure completion of research projects;

## Methodology

In order to develop IRREMS, the researchers need to follow the key processes of software engineering (Sommerville 2011). These software processes include software requirements specification, software design, software development, software testing, and software implementation. These processes are discussed in detail in the succeeding sections.

### Software Requirements Specification

The researchers conducted the data gathering mainly through interviews and prototype demonstration with the users of the software in order to specify the requirements. The interviews happened within the University of Mindanao Matina campus, specifically at the RPC main office.

After the data gathering activities, the researchers came up with the following essential user requirements:

- The system shall allow users to add, edit, delete, and view authors' records.
- The system shall allow user to add, edit, delete, and view research records.
- The system shall generate reports based on specific criteria such as by college, by discipline, or by specific keywords.
- The system shall have two types of users; one that can access everything, and one that can only add and view records.
- The system shall provide a mechanism for exporting reports to MS Word for formatting and printing.
- The system shall monitor logs on research records.
- The system shall allow users to view research abstracts and full papers in PDF format.
- The system shall generate reports on the status of research papers such as dormant, active, or terminated.
- The system shall allow users to add research credentials, awards, and evidences for appropriate authentication and validation of appropriate incentives.

### Software Design

In order to obtain a firm grasp on how to implement the software, the researchers created data and process models. These models include entity-relationship diagrams for the database and use case diagrams for system functionalities.

#### Entity Relationship Diagram

The Entity-Relationship Diagram is a modeling tool used in database management systems to present the relationship of entities in the entire database system.

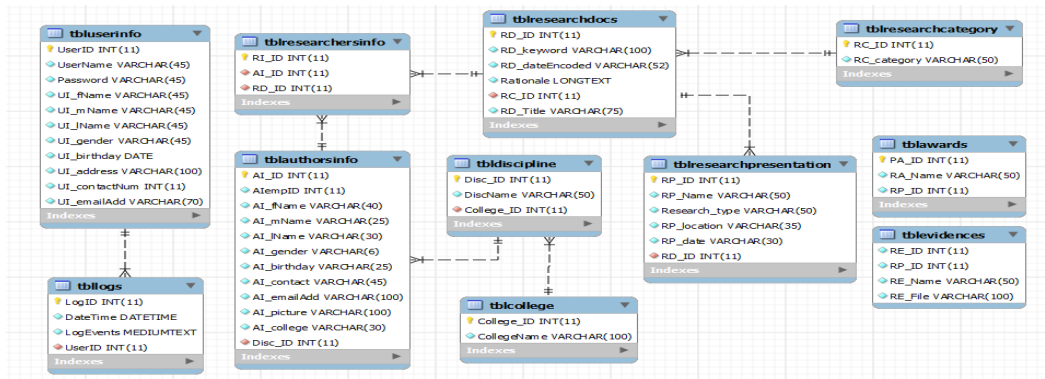


Figure 2 - Entity Relationship Diagram



### Software Development

The researchers used the Scrum methodology in developing the software. This agile method requires the development team to have a Scrum Master. The Scrum Master conducts regular meetings pertaining to the progress of the project in terms of the accomplishments of the sprints.

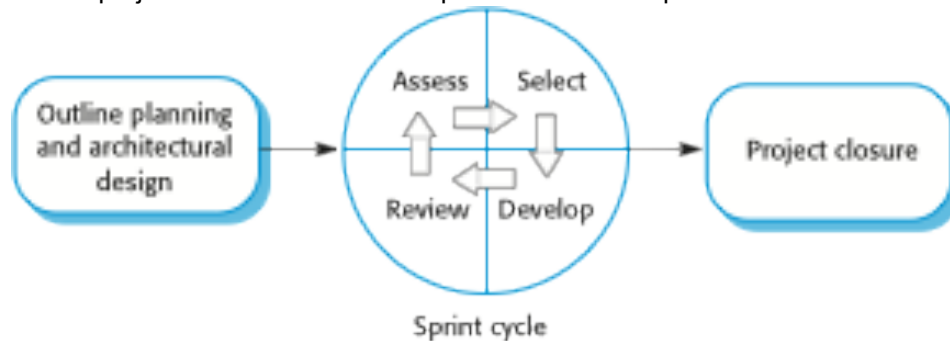


Figure 3 - The three phases of Scrum methodology

Scrum has three phases. The first phase is an outline planning phase where the researchers establish the general objectives for the project and come up with a software design. A series of sprint cycles then follows. A sprint cycle is where an increment of the system is developed.

The researchers created sprints for the essential modules of IRREMS, namely, Author, Research, Reports, Utilities, and User Management. Each of these modules go through assessment, selection, development, and review to assure that only the right functionalities are delivered.

### Software Testing

The researchers conducted several software testing activities in order to properly validate the software. These testing activities were necessary to ensure that the system does what it is supposed to do, thereby showing that this phase is where quality management takes place.

Unit testing, system testing, and user acceptance testing were the testing activities conducted. During the testing sessions, testers filled up test cases created by the researchers to validate the software product. A test case is a document that contains questions or tasks related to the functionalities that should be provided by the software unit or module. A sample test case follows.

#### Sample test case: Main Form

| Code Number | Task                                  | Expected Result                                                                         | Actual Result (P / F) |
|-------------|---------------------------------------|-----------------------------------------------------------------------------------------|-----------------------|
| MN01        | Open Form.                            | All buttons are enabled.                                                                | P                     |
| MN02        | Click RESEARCH MANAGEMENT menu.       | Author Management, Research Module, and Research Presentation menu items are displayed. | P                     |
| MN03        | Click Author Management menu item.    | Author Management form is displayed.                                                    | P                     |
| MN04        | Click Research Module menu item.      | Research Management form is displayed.                                                  | P                     |
| MN05        | Click Research Presentation menu item | Add Presentation form is displayed.                                                     | P                     |
| MN06        | Click UTILITY menu.                   | Add Discipline, Add Colleges, and Add Agenda menu items are displayed.                  | P                     |
| MN07        | Click Add Discipline menu item.       | Add Discipline form is displayed.                                                       | P                     |
| MN08        | Click Add Colleges menu item.         | Add Colleges form is displayed.                                                         | P                     |
| MN09        | Click Add Agenda menu item.           | Agenda Management form is displayed.                                                    | P                     |
| MN10        | Click ACCOUNT MANAGEMENT menu.        | Add New Account, and Change Password menu items are displayed.                          | P                     |
| MN11        | Click Add New Account menu item.      | User Accounts form is displayed.                                                        | P                     |
| MN12        | Click Change Password menu item.      | Change Password form is displayed.                                                      | P                     |



|      |                                          |                                                                                                              |   |
|------|------------------------------------------|--------------------------------------------------------------------------------------------------------------|---|
| MN13 | Click REPORTS menu                       | Research List, Presentation, Periodic Reporting, Dormant Researches, and Graphical menu items are displayed. | P |
| MN14 | Click Research List menu item.           | Research List Report form is displayed.                                                                      | P |
| MN15 | Click Presentation menu item.            | Presentation Report form is displayed.                                                                       | P |
| MN16 | Click Periodic Reporting menu item.      | Periodic Report Form is displayed.                                                                           | P |
| MN17 | Click Dormant Researches menu item.      | Dormant Researches Report form is displayed.                                                                 | P |
| MN18 | Click Graphical menu item.               | Graphical Report form is displayed.                                                                          | P |
| MN19 | Click LOGOUT button.                     | Program is terminated.                                                                                       | P |
| MN20 | Click ADD RESEARCH button or press F1    | Add Research Form is displayed.                                                                              | P |
| MN21 | Click VIEW RESEARCHES button or press F2 | View Research Form is displayed.                                                                             | P |
| MN22 | Click MANAGE AUTHORS button or press F3  | Author Management Form is displayed.                                                                         | P |
| MN23 | Click PRINT button or press CTRL + P     | Print Document dialog box is displayed.                                                                      | P |

Figure 4 - Main Form test case

#### Software implementation

IRREMS has been installed in all workstations present in the UM-RPC. The installation of all hardware and software components, as well as network configuration were administered by the researchers. User training was also conducted to orient users in the operations of the software. A user's manual was also provided to guide and assist users in the operation of the entire system.

#### Results and Discussion

The figures below show some of the test case scenarios and results as output of the software testing process. Each of these tables show the actual results of the test with the P or F as markers for Passed and Failed test. After a thorough walkthrough and debugging, the researchers made sure that these functionalities are addressed.

| Code Number | Task                                                     | Expected Result                                                                               | Actual Result (P / F) |
|-------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------|
| ACM01       | Open Form.                                               | All fields are disabled, and NEW button is enabled.                                           | P                     |
| ACM02       | Click NEW button.                                        | All fields are enabled except User ID, NEW button is disabled, and ADD button is enabled.     | P                     |
| ACM03       | Fill up textboxes.                                       | Textboxes are filled up with values.                                                          | P                     |
| ACM04       | Click ADD button.                                        | A record is saved in the database.                                                            | P                     |
| ACM05       | Click ADD button when all textboxes are not filled up.   | An error message appears and no record is saved in the database.                              | P                     |
| ACM06       | Click ADD button when there is at least one empty field. | An error message appears and no record is saved in the database.                              | P                     |
| ACM07       | Click an item on the grid                                | All textboxes are filled with values of that particular record, and UPDATE button is disabled | P                     |
| ACM08       | Click UPDATE button                                      | A record is updated in the database                                                           | P                     |

Figure 5 - Account Management Form test case

| Code Number | Task                                                      | Expected Result                                                             | Actual Result (P / F) |
|-------------|-----------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------|
| CPW01       | Open Form.                                                | All fields are enabled.                                                     | P                     |
| CPW02       | Fill up textboxes.                                        | Textboxes are filled up with values.                                        | P                     |
| CPW03       | Click SAVE CHANGES button.                                | A record is saved in the database and the password is successfully changed. | P                     |
| CPW04       | Click SAVE CHANGES button when old password is incorrect. | An error message appears and no change is saved in the database.            | P                     |

Figure 6 - Change Password form test case





| Code Number | Task                                                            | Expected Result                                                         | Actual Result (P / F) |
|-------------|-----------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------|
| LOF01       | Open Form.                                                      | All fields are enabled.                                                 | P                     |
| LOF02       | Fill up textboxes.                                              | Textboxes are filled up with values.                                    | P                     |
| LOF03       | Click LOGIN button when the password and username match.        | The main form is opened.                                                | P                     |
| LOF04       | Click LOGIN button when the password and username do not match. | An error message appears and Login form is displayed with empty fields. | P                     |

Figure 7 - Login form test case

| Code Number | Task                                        | Expected Result                                                                                            | Actual Result (P / F) |
|-------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------|
| AUM01       | Open Form.                                  | All fields are disabled including SAVE and UPDATE buttons, and ADD NEW button is enabled                   | P                     |
| AUM02       | Click ADD NEW button.                       | All fields are enabled including the SAVE button, while UPDATE and ADD NEW buttons are disabled.           | P                     |
| AUM03       | Fill up textboxes.                          | Textboxes are filled up with values.                                                                       | P                     |
| AUM04       | Click SAVE button                           | A record is saved in the database.                                                                         | P                     |
| AUM05       | Click SAVE button when all fields are empty | An error message is displayed and no record is saved in the database.                                      | P                     |
| AUM06       | Click an item on the grid                   | All textboxes are filled with values of that particular record, and UPDATE button is disabled              | P                     |
| AUM07       | Click UPDATE button                         | A record is updated in the database, SAVE and UPDATE buttons are disabled, while ADD NEW button is enabled | P                     |

Figure 8 - Author Management form test case

| Code Number | Task                  | Expected Result                                                         | Actual Result (P / F) |
|-------------|-----------------------|-------------------------------------------------------------------------|-----------------------|
| RLS01       | Open Form.            | All fields and buttons are enabled.                                     | P                     |
| RLS02       | Click combo boxes     | Appropriate options are displayed.                                      | P                     |
| RLS03       | Click SHOW ALL button | Records under that category are displayed in the report form.           | P                     |
| RLS04       | Click EXPORT button   | The report is exported to MS Word and is ready for editing or printing. | P                     |

Figure 9 - Research List form test case

| Code Number | Task                                                     | Expected Result                                                                      | Actual Result (P / F) |
|-------------|----------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------|
| RSM01       | Open Form.                                               | All fields and buttons are enabled.                                                  | P                     |
| RSM02       | Fill up textboxes.                                       | Textboxes are filled up with values.                                                 | P                     |
| RSM03       | Click BROWSE button.                                     | A dialog box for directory search is opened and the user selects a file to be opened | P                     |
| RSM04       | Click SAVE NEW RESEARCH button                           | A record is saved in the database.                                                   | P                     |
| RSM05       | Click SAVE NEW RESEARCH button when all fields are empty | An error message is displayed and no record is saved in the database.                | P                     |

Figure 10 - Research Management form test case



## **Conclusions**

The software testing phase revealed weaknesses and inadequacies of IRREMS. Once these flaws were discovered, software debugging followed and dealt with the issues one by one. After a thorough testing cycle on each of the important unit and system components, the researchers concluded that the system has met all the user requirements such as:

- Allow users to add, edit, delete, and view authors' records.
- Allow user to add, edit, delete, and view research records.
- Generate reports based on specific criteria such as by college, by discipline, or by specific keywords.
- Have two types of users; one that can access everything, and one that can only add and view records.
- Provide a mechanism for exporting reports to MS Word for formatting and printing.
- Monitor logs on research records.
- Allow users to view research abstracts and full papers in PDF format.
- Generate reports on the status of research papers such as dormant, active, or terminated.
- Allow users to add research credentials, awards, and evidences for appropriate authentication and validation of appropriate incentives.

## **Recommendations**

The researchers recommend that IRREMS be deployed and implemented in the UM-RPC. The system has gone through a series of testing and debugging activities to ensure that all the functionalities are working. The system shall be used continuously for six months before an evaluation study can commence to evaluate the effectiveness of implementing a computer-based information system in the daily operations of the UM-RPC.

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## **The Relationship Of College Admission Test And Mock Board Examination To The Licensure Examination For Customs Brokers**

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### **Abstract**

Admission tests in college assess students' readiness for the college level education while mock board examination evaluates readiness for the licensure examination. The performance of BS Customs Administration students in these two tests and their relationship to their performance in the Licensure Examination for Customs Brokers (LECB) were considered in the investigation. Using inferential statistics, scores in the entrance examination and ratings in the mock board examination of BSCA students for the past four years were correlated with their ratings in the LECB. A total of 66 students who graduated from 2011 to 2014 who took the licensure examination and with complete entrance exam and mock board exam records served as respondents of this study. Results revealed a positive significant relationship between composite score in the admission test and students' scores in the four subjects of the LECB: Customs Laws and Implementing Rules and Regulations; Tariff Laws and International Trade Agreements; Warehousing, Transportation and Cargo Handling Operations; and Practical Computations of Customs Duties, Taxes and other charges. Ratings in the four subject areas of the mock board examination were also significantly related to scores in the equivalent subject areas of the LECB. The study concludes the importance of entrance test as part of the admission policy in the BSCA program and the mock board examination in improving the performance of graduates in the Licensure Examination for Customs Brokers.

Key words: Admission Tests, Mock Board Examination, Licensure Examination, Correlates of Performance, Examination Performance

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## Introduction

The Bachelor of Science in Customs Administration or BSCA for brevity, is described in CHED Memo. Order No 11, s. 2005, as a degree program that will prepare individuals to meet the requirements of professional customs brokers in the Philippines. It also aims to develop customs brokers who are competent and knowledgeable in the import and export operations. The Licensure Examination for Customs Brokers (LECB) conducted by the Professional Regulation Commission (PRC) screens graduates of the Bachelor of Science in Customs Administration who are eligible to practice as Customs Brokers. The law that covers the LECB is Republic Act No. 9280 or The Act Regulating the Practice of Customs Brokers Profession in the Philippines. The law provides and governs the standardization and regulation of customs administration education; the examination and registration of customs brokers; and the supervision, control and regulation of the practice and customs broker profession.

The school's performance in the board examination is one of the indicators of quality education as prescribed by the Commission on Higher Education (CHED). CHED had the legal authority to order the closure or phasing out of degree programs that failed to meet the standards in licensure tests. On November 24, 2009, CHED chair Dr. Emmanuel Angeles, warned low performing schools in the board examination citing CHED Resolution No. 378-2009 which provides that: Higher Education Institutions (HEI) whose performance in licensure examinations in the last three consecutive years is greater than 50 percent but lower than the national passing rate shall be given an initial warning to improve their performance. For schools whose passing percentage is zero percent for the last three years, CHED said that they would be phased out while those whose performance in licensure tests were above 50 percent but less than the national average their recognized programs should be downgraded to permit status (Talete, H., 2009).

The Bachelor of Science in Customs Administration of JBLFMU-Molo was first offered in 1982. Since then, the program was able to produce passers in the licensure exams. There is, however, an erratic degree of performance, from JBLFMU-Molo graduates in the LECB as shown on records. For the past five years (2010 to 2014) for example, JBLFMU –Molo has obtained a passing percentage above national passing in 2010 (JBLFMU-Molo 48.72%; National 29.71%), and 2013 (JBLFMU-Molo 56.52%; National 41.71%), but fell below national passing in 2011 (JBLFMU-Molo 33.33%; National 36.76%); 2012 (JBLFMU-Molo 33.33%; National 40.76%); and 2014 (JBLFMU-Molo 34.21%; National 43.51%). To help graduates become more competitive in passing the licensure exams, the BSCA program have intensified its review classes, Tar 7 (Tariff Laws and Jurisprudence) and CA 9 (Customs Law Review), embedded in the curriculum and designed a mock board examination to let graduating students feel the LECB. The mock board examination is a comprehensive examination imitating the licensure exams. It includes subjects in the LECB namely, Customs Laws and Implementing Rules and Regulations; Tariff Laws and International Trade Agreements; Warehousing, Transportation and Cargo Handling Operations; and Practical Computations of Customs Duties, Taxes and other charges.

Several schools offering programs with licensure examination have studied the correlation between students' performance in the mock board examination and licensure examination. Some investigations conducted however, have concluded the inconsistencies in the relationship between the two variables due to a no significant relationship results (Manalo, M. & Obligar, M., 2013; Sagarino, E. & Corpuz, D., 2011). While others found that performance in the mock board examination is a predictor of success in the licensure exams (Gana, et al., M., 2014; Tarun, I., et al., 2014; Montemayor, E. et al., 2009; Stewart, C.M. et al., 2004). Still, other studies sought other variables to predict performance in the licensure exams other than the mock board examination in an effort to better their graduates' performance in the licensure exams. Both academic and non-academic variables were considered like sex, monthly income, type of high school attended, residence, high school GPA and NAT ratings as correlated to performance in the Philippine Nurse Licensure Examination (Oducado, R. & Penuela, A., 2014) and concluded that academic factors are better predictors of licensure examination. Academic performance grades were also found to be significantly correlated to licensure examination ratings of engineering graduates (Forones, A., 2012). Admission and retention policy, instruction and faculty competence were described to be correlated with performance in the licensure examination (Faltado, R., 2014; Castillo, T., 2011).

This study in particular, aims to find out predictors of performance in the Licensure Examination for Customs Brokers (LECB) of the graduates of John B. Lacson Foundation Maritime University – Molo. Specifically, the investigation would like to analyze the relationship of the two variables, mock board performance and college



entrance examination, to students' performance in the licensure examination. Since college entrance examination is set to find out the readiness of students in a chosen program to enroll in college, it may likewise be an early indicator of success in the licensure examination.

### **Statement of Problems**

This study aims to correlate the performance of students in the entrance examination to students' performance in the LECB and correlate students' performance in the mock board examination to their performance in the LECB. The specific questions intended to be answered by the investigation are the following:

1. What is the relationship between students' performance in the college entrance examination and the LECB?
2. Is there a significant relationship between students' performance in the college entrance examination and the LECB?
3. What is the relationship between students' performance in the mock board examination and their performance in the LECB?
4. Is there a significant relationship between students' performance in the mock board examination and their performance in the LECB?

Based on the above problems the following null hypotheses were tested and correlations interpreted significant at .01 levels.

1. There is no significant relationship between students' performance in the college entrance Examination and the LECB.
2. There is no significant relationship between students' performance in the mock board examination and their performance in the LECB.

### **Methodology**

This study is a descriptive-correlation research using records of students for the past four years as data to describe the relationship of the entrance examination and mock board examination of students to their performance in the LECB. The respondents of this study include 66 graduates from batch 2011 to batch 2014 distributed as 15 (22.73%) from batch 2011, 9 (13.64%) from batch 2012, 16 (24.24%) from batch 2013 and 26 (39.39%) from batch 2014. The graduates whose Entrance Exam record were not available and who were not able to take the LECB were not included.

The data for entrance examination included respondents' score in Math, English and Science while the mock board examination included scores in the four subjects of the examination namely, Customs Laws and Implementing Rules and Regulations (Subject 1); Tariff Laws and International Trade Agreements (Subject 2); Warehousing, Transportation and Cargo Handling Operations (Subject 3); and Practical Computations of Customs Duties, Taxes and other charges (Subject 4). The same subjects compose the LECB.

The entrance examination is an assessment test facilitated by the Guidance Office to all applicants in College. The 150-item test is composed 50 items each in Math, English, and Science. Applicants for Bachelor of Science in Customs Administration (BSCA) are required to earn a total score of 45 and at least 15 in all three subjects otherwise will be placed in probationary status. The mock board examination is a comprehensive examination given to graduating students of BSCA and serves as their final examination. The four subjects are scheduled to be taken in two days with one subject each morning and one each afternoon. Every subject is given an allotted time of three hours.

The Licensure Examination for Customs Brokers is administered by the Professional Regulation Commission to legally practice the profession of Customs Brokering. In order to pass, an examinee should earn a total rate of 75% and at least 60% in all subjects.



## Results and Discussion

Table 1 . *Relationship Between Performance in the Entrance Examination and LECB*

| LECB Rating                              | r    | p-value |
|------------------------------------------|------|---------|
| Total Score in Entrance Examination      | .700 | .000    |
| Score in Entrance Examination in English | .582 | .000    |
| Score in Entrance Examination in Math    | .705 | .000    |
| Score in Entrance Examination in Science | .566 | .000    |

Correlation of variables using Pearson's  $r$  correlation reveals a "moderate positive" and significant relationship ( $r=.700$ ,  $p=.000$ ) between the total score in the entrance examination and performance in the LECB. A "moderate positive" and significant relationship are also found between entrance exam in English and performance in LECB ( $r=.582$ ,  $p=.000$ ) and entrance exam in Science and performance in LECB ( $r=.566$ ,  $p=.000$ ). A "strong positive" relationship is shown to exist between entrance exam in Math and performance in the LECB. The total score in the entrance examination and scores in all individual subjects that compose the entrance examination are significantly correlated with ratings in the LECB.

Table 2 . *Relationship Between Performance in the Entrance Examination in English and various Subjects of the LECB*

| Score in Entrance Examination in English                                 | r    | p-value |
|--------------------------------------------------------------------------|------|---------|
| Rating in Tariff Laws and International Trade Agreements                 | .555 | .000    |
| Rating in Customs Laws and Implementing Rules and Regulations            | .497 | .000    |
| Rating in Warehousing, Transportation and Cargo Handling Operations      | .544 | .000    |
| Rating Practical Computations of Customs Duties, Taxes and other charges | .448 | .000    |

Table 2 indicates a "moderate positive" and significant relationship between students' score in the entrance examination in English and students' performance in all subjects of the LECB as follows: Tariff Laws and International Trade Agreements ( $r=.555$ ,  $p=.000$ ), Customs Laws Implementing Rules and Regulations ( $r=.497$ ,  $p=.000$ ), Warehousing, Transportation and Cargo Handling Operations ( $r=.644$ ,  $p=.000$ ) and Practical Computations of Customs Duties, Taxes and other charges ( $r=.448$ ,  $p=.000$ ).

Table 3. *Relationship Between Performance in the Entrance Examination in Math and various Subjects of the LECB*

| Score in Entrance Examination in Math                                       | r    | p-value |
|-----------------------------------------------------------------------------|------|---------|
| Rating in Tariff Laws and International Trade Agreements                    | .599 | .000    |
| Rating in Customs Laws and Implementing Rules and Regulations               | .661 | .000    |
| Rating in Warehousing, Transportation and Cargo Handling Operations         | .559 | .000    |
| Rating in Practical Computations of Customs Duties, Taxes and other charges | .629 | .000    |

BSCA students' score in their entrance examination in Math is found to has a "moderate positive" and significant relationship in their performance in the various subjects of the LECB as follows: Tariff Laws and International Trade Agreements ( $r=.599$ ,  $p=.000$ ), Customs Laws Implementing Rules and Regulations ( $r=.661$ ,  $p=.000$ ), Warehousing, Transportation and Cargo Handling Operations ( $r=.559$ ,  $p=.000$ ) and Practical Computations of Customs Duties, Taxes and other charges ( $r=.629$ ,  $p=.000$ ).

Table 4. *Relationship Between Performance in the Entrance Examination in Science and various Subjects of the LECB*

| Score in Entrance Examination in Science                                    | r    | p-value |
|-----------------------------------------------------------------------------|------|---------|
| Rating in Tariff Laws and International Trade Agreements                    | .432 | .000    |
| Rating in Customs Laws and Implementing Rules and Regulations               | .552 | .000    |
| Rating in Warehousing, Transportation and Cargo Handling Operations         | .489 | .000    |
| Rating in Practical Computations of Customs Duties, Taxes and other charges | .492 | .000    |

Correlation of variables in Table 4 indicates that students score in their entrance examination in Science has a "moderate positive" and significant relationship with their performance in the various subjects of the LECB as





follows: Tariff Laws and International Trade Agreements ( $r=.432$ ,  $p=.000$ ), Customs Laws Implementing Rules and Regulations ( $r=.552$ ,  $p=.000$ ), Warehousing, Transportation and Cargo Handling Operations ( $r=.489$ ,  $p=.000$ ) and Practical Computations of Customs Duties, Taxes and other charges ( $r=.492$ ,  $p=.000$ ).

Table 5. *Relationship Between Mock Board Examination and LECB*

| Total Rating in LECB                                                                   | r    | p-value |
|----------------------------------------------------------------------------------------|------|---------|
| Total Rating in Mock Board                                                             | .749 | .000    |
| Mock Board Rating in Tariff Laws and International Trade Agreements                    | .700 | .000    |
| Mock Board Rating in Customs Laws and Implementing Rules and Regulations               | .655 | .000    |
| Mock Board Rating in Warehousing, Transportation and Cargo Handling Operations         | .428 | .000    |
| Mock Board Rating in Practical Computations of Customs Duties, Taxes and other charges | .532 | .000    |

There is a “strong positive” and significant ( $r=.749$ ,  $p=.000$ ) relationship between students’ performance in the Mock Board examination and the LECB. A “moderate positive” and significant relationship is found between Mock Board rating in the different Mock Board subjects and total rating in the LECB.

Table 6. *Relationship Between Corresponding Subjects in the Mock Board Examination and LECB*

| Rating in Corresponding LECB Subject                                                   | r    | p-value |
|----------------------------------------------------------------------------------------|------|---------|
| Mock Board Rating in Tariff Laws and International Trade Agreements                    | .700 | .000    |
| Mock Board Rating in Customs Laws and Implementing Rules and Regulations               | .655 | .000    |
| Mock Board Rating in Warehousing, Transportation and Cargo Handling Operations         | .428 | .000    |
| Mock Board Rating in Practical Computations of Customs Duties, Taxes and other charges | .532 | .000    |

When ratings of students in the various subjects of the Mock Board examination are correlated with their performance in the corresponding subjects in the LECB, data show a “moderate positive” and significant relationship in all pairings as revealed in Table 6.

## Conclusions

Statistical data show that both the performance of BSCA students in the entrance examination in College and their performance in the Mock Board examination are significantly correlated to their performance in the board examination. This gives an impression that a higher rating in the entrance exam will be rated a higher score in the board examination. And a student with a higher rate in the mock board examination will have a higher performance in the board examination.

The findings of the present investigation also implies the role of admission tests in screening applicants for a college program with a licensure exam. Entrance examination is an early indicator of students’ success in the board examination.

The significant relationship in the results of the Mock Board examination given in the College for the past four years and the LECB is also a manifestation that the level of difficulty of the Mock Board test items are at par with the actual board test questions. It can also be inferred that the Mock Board examination could pre-assess the student’s capability in passing the licensure exam.

## Recommendations

The findings and conclusions of this study led the researcher to recommend the following:

1. The Admission Committee of the College should set a higher passing score admission requirement for first year applicants of the BSCA program as part of its admission policy.
2. A feedback mechanism of a graduating student’s readiness to take the licensure examination as a result of his mock board examination should be strengthened.
3. Textbooks, references, review materials and other sources used in conducting classes in preparation for the mock board examination should be abreast with the recent developments in customs and tariff laws, rules and regulations to keep up with possible test items in the licensure exams.
4. A parallel study may be conducted to revalidate the findings of this study.



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## Effects Of Job Rotation On The Employees Of Cantilan Bank Inc. (A Rural Bank): An Assessment

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### Abstract

The study assessed the effects of job rotation in the employees of Cantilan Bank, Inc. (A Rural Bank) both in Cantilan and Madrid Branches. Three (3) research questions were posed to guide the study. There were two (2) parts of the questionnaire. Part one was about the personal information of the employee in Cantilan Bank, Inc. (A Rural Bank). Part two includes the different positions that have been rotated in the employees and the effects of job rotation in the employees in terms of Job performance, Working Condition, Knowledge, and Internal Control. Random Sampling technique was used to acquire the desired data and a total of 25 respondents were studied in that institution. The study observed a descriptive survey design which the data for the study was collected through an instrument (questionnaire). The content and face validity of the instrument was adequately handled. Mean rating and percentage were employed to analyze research questions. Findings revealed that most likely, the respondents were matured enough either a male or female within the age of 22-54 years old. Thus, they can do the managing, adjust and have the capacity to perform multi-tasking. Based on the findings, discussions and conclusions were drawn; recommendations made amongst others were that the employees should be rotated to the other job positions within the organization in order for them to be motivated to become effective and efficient workers. Thus, prepare them for their future career growth as well as to aid the organization's human resource planning.

Keywords: Job rotation, Knowledge, Working Condition, Internal Control, Career growth, Human Resource Planning

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## Introduction

Job rotation or cross training is one of the many forms of on the job training and a formal effort of executive development. (Zeira, 1974; Beatty, Schneier and McEvoy, 1987). Job rotation can be defined as lateral transfer of employees among a number of different positions and task within jobs where each requires different skills and responsibilities. Individuals learn several different skills and perform each task for a specified time period. (Beatty, Schneier & McEvoy, 1987). Employees are resifted between two or more assignments or jobs at regular intervals of time in order to expose them to all vertical positions of an organization. This is to test the employee skills and competencies in order to place him or her at the right place.

The practice of job rotation contributes at least to skill variety and task identity. In addition, employees see job rotation as a way of acquiring the skills needed for promotions and as an investment by the employers in their development. Rotating employees to different positions is an excellent way to motivate them, give them a sense of belonging, reduce boredom and fight off a back commitment. (Campion et. Al 1994).

There are both positive and negative effects involved with job rotation that need to be taken into consideration when a company decision to use this technique. Organizations that use job rotation tend to be successful innovative companies and organizations with a growth and development agenda. Job rotation is also a control to detect errors and fraud. It reduces the risk of collusion between individuals. Organizations dealing with sensitive information or system (e.g bank) where there is an opportunity for personal gain can benefit by job rotation also helps business continuity as multiple people are equally equipped to perform a job function if an employee is not available other can handle his or her position with similar efficiency.

The significance of this study is for both the management and the employees; they are able to discover their hidden potentials. It helps management in discovering the talent of employees and determining what he or he is best at. On the other hand, it gives an individual a chance to explore his or her own interest and gain experience in different fields or operations. Job rotation is also practice to allow qualified employees to gain more insights into the processes of a company and to increase job satisfaction through job rotation. Job rotations give the employee a bit of a break and hopefully increase job satisfaction and motivation. This enhances their working commitment and job involvement also increases an employee's knowledge, skills and perspective. It is often used as a means to groom an employee for future leadership positions within the organization.

## Statement of the Objectives/Problems

This study will assess the effects of Job Rotation on the employee in Cantilan Bank Inc. The study specifically sought to answer the following.

1. What is the demographic profile of the employees in terms of:
  - a) Age
  - b) Gender
  - c) Highest Educational Attainment
  - d) Nature of work
  - e) Years of Experience
2. What are the bank's positions being rotated?
3. What are the effects of job rotation in terms of:
  - a. Job performance
  - b. Working condition
  - c. Knowledge
  - d. Internal control
4. Based on the findings, what recommendations and intervention program will be suggested?

## Methodology

The descriptive survey method of the research was utilized in this study using questionnaire as the main instrument in gathering data of the study. This method is a fact finding investigation which gathers data, based on the present condition when study was conducted.

The subject and respondents of the study are composed of the employees in Cantilan Bank, Inc. Cantilan Branch and Cantilan Bank Madrid branch. For the purpose of collecting data 25 of 35 respondents are considered.



The instrument used in data gathering was questionnaire. The constructions of the questionnaire were developed accurately by the researcher's in a way that the respondent may understand the question clearly.

There were two (2) parts of the questionnaire. Part one was about the personal information of the employee in Cantilan Bank with reference to their Name, Age, Sex, Highest Educational Attainment, Nature of work, and years of experience. Part two includes the different positions that have been rotated in the employees and the effects of job rotation in the employees in terms of Job performance, Working Condition, Knowledge, and Internal Control.

The researchers sent a letter of request asking permission from the participants. They distributed the questionnaires before examining the effects of job rotation on the employees of Cantilan Bank, Cantilan and Madrid Branch.

The researchers gave the participants the option to answer it while they wait or the researchers would retrieve the questionnaires the next day. Upon the retrieval of the questionnaires, the researchers examined it and were able to analyze the effects of job rotation in the employees of Cantilan Bank.

## Results and Discussions

What is the demographic profile of the employees in terms of:

Age

Table 1 will show the distribution of the respondents' age.

| AGE   | Frequency (f) | Percentage (%) |
|-------|---------------|----------------|
| 22-25 | 10            | 40%            |
| 26-30 | 8             | 32%            |
| 31-35 | 3             | 12%            |
| 36-40 | 3             | 12%            |
| 41-45 | 0             | 0%             |
| 46-50 | 1             | 4%             |
| Total | N=25          | 100%           |

Table 1 clearly presented the distribution of the respondents' age. It showed that most of the employees are 22-25 years old which has 40%. There is only 1 (4%) who belongs to 46-50 years old frequency group.

Gender

Table 2 will reveal the distribution of gender of the respondents.

| Gender | Frequency (f) | Percentage (%) |
|--------|---------------|----------------|
| Male   | 12            | 48%            |
| Female | 13            | 52%            |
| Total  | 25            | 100%           |

Table 2 showed that 48% of the employees are male and 52% of them are female employees. Gender distribution indicated that males are outnumbered by the female employees of Cantilan Bank.

Nature of work

Table 3 will show the present nature of work of the employees of Cantilan Bank.

| Nature of Work  | Frequency (f) | Percentage (%) |
|-----------------|---------------|----------------|
| New Accounts    | 2             | 8%             |
| Teller          | 5             | 20%            |
| Account Officer | 9             | 36%            |
| Bookkeeper      | 3             | 12%            |
| Loan Officer    | 1             | 4%             |
| Cashier         | 2             | 8%             |
| Manager         | 1             | 4%             |
| Vault Custodian | 1             | 4%             |
| Loan Processor  | 1             | 4%             |
| BMA             | 1             | 4%             |
| Total           | 25            | 100%           |

Table 3 showed that 36% were account officers and the least frequency were Manager, Vault Custodian, Loan Processor, and Branch Marketing Assistant(4%).



## Years of Experience

Table 4 will reveal the profile of the respondents with regards to their work experience.

| Years of Experience     | Frequency (f) | Percentage (%) |
|-------------------------|---------------|----------------|
| 1 month-1 year          | 4             | 16%            |
| 1 year above-2 years    | 4             | 16%            |
| 2 years above-3 years   | 5             | 20%            |
| 3 years above-4 years   | 4             | 16%            |
| 4 years above-5 years   | 2             | 8%             |
| 5 years above-10 years  | 4             | 16%            |
| 10 years above-15 years | 2             | 8%             |
| Total                   | 25            | 100%           |

As shown from the table above, it showed that 20% of the respondents are working for 2 years above to 3 years. Whereas, the least frequency of the respondents profiled through their work experience, are working 10 years above to 15 years (8%).

What are the bank's positions being rotated?

Table 5 presents the positions in the bank that were being rotated by the employees.

| Nature of Work             | Frequency (f) | Percentage (%) |
|----------------------------|---------------|----------------|
| New Accounts               | 14            | 56%            |
| Teller                     | 14            | 56%            |
| Accounting Officer         | 12            | 48%            |
| Bookkeeper                 | 3             | 12%            |
| Loan Officer               | 4             | 16%            |
| Cashier                    | 5             | 20%            |
| Manager                    | 2             | 8%             |
| Loans Bookkeeper           | 2             | 8%             |
| Branch Marketing Assistant | 1             | 4%             |

Table 5 showed the positions within the workplace which has been rotated. The New Accounts and Teller are the positions which garnered 56% and obviously highest percentage of positions being rotated. The least position being rotated is the Branch Marketing Assistant with 4%.

Effects of job rotation in terms of:

## Job Performance

Table 6 will show the effects of job rotation in the job performance of the employees

|                                                                       | Weighted Mean | Verbal Interpretation | Ranking |
|-----------------------------------------------------------------------|---------------|-----------------------|---------|
| I find myself more productive when there's a job rotation.            | 4.32          | Strongly Agree        | 1       |
| Job rotation makes me confuse with my job.                            | 2.56          | Disagree              | 2       |
| It gives me hard time to learn new task.                              | 2.24          | Disagree              | 3       |
| I don't find myself productive when I'm being assigned to other jobs. | 2.2           | Disagree              | 4       |
| This leads me to low performance.                                     | 1.88          | Disagree              | 5       |

Table 6 revealed that employees strongly agreed on the notation that "I find myself more productive when there's a job rotation" which has the highest weighted mean of 4.32. However, on the idea that "Job rotation leads me to low performance" has the lowest weighted mean of 1.88.

The analysis of this research question coincides with a study conducted by Weichel et. al. (2010) in an automotive industry observed the relationship of job rotation and aging workforce and impaired employees. The results show that older employees and impaired workers rotated less. Workers who rotated more assess their job performance higher than the aging and impaired employees who rotated less. The more that an employee participates in job rotation, the less is his absenteeism. Higher absenteeism, lower job performance and lower health score are observed among the aging workforce and impaired employees who rotated less.





## Working Condition

Table 7 presents the effects of job rotation in the working condition of the employees within their workplace.

|                                                               | Weighted Mean | Verbal Interpretation      | Ranking |
|---------------------------------------------------------------|---------------|----------------------------|---------|
| Job rotation improves my working condition.                   | 4.36          | Strongly Agree             | 1       |
| My new environment and coworkers motivates me to work harder. | 4.16          | Agree                      | 2       |
| It decreases boredom in my usual job.                         | 2.96          | Neither Agree nor Disagree | 3       |
| This gives me physical and emotional stress.                  | 2.52          | Disagree                   | 4       |
| Job rotation decreases my concentration towards new task.     | 2.36          | Disagree                   | 5       |

Table 7 vividly showed the effects of job rotation in terms of the employees' working condition. It presented that the employees strongly agreed on the concept that "Job rotation improves my working condition" which has a weighted mean of 4.36. While the idea of "Job rotation decreases my concentration towards new task" was disagreed by the respondents with a weighted mean of 2.36.

It conformed with a study which has a conclusion that job rotation not only increases professional knowledge and experiences, also individual's performance in different positions and responsibilities is the best criterion for evaluation and measurement of his capabilities especially his working condition (Esmaili, 1999).

## Knowledge

Table 8 will indicate the effects of job rotation in the field of employees' knowledge.

|                                                                                                                                   | Weighted Mean | Verbal Interpretation      |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|
| Job rotation gives me opportunity to learn new things and develop them.                                                           | 5.2           | Strongly Agree             |
| Job rotation expands my knowledge, accomplishment, reach impact and potentially influence a different aspect of the organization. | 4.68          | Strongly Agree             |
| I learned different jobs that require new skills and provide different responsibilities.                                          | 4.4           | Strongly Agree             |
| I acquire professional growth with job rotation.                                                                                  | 4.32          | Strongly Agree             |
| It builds my organizational knowledge and ability to get things done.                                                             | 2.8           | Neither Agree nor Disagree |

Table 8 showed that the highest weighted mean when it comes to the effects of job rotation in the knowledge of the employees is the notion that "Job rotation gives me opportunity to learn new things and develop them" with a weighted mean of 5.2. The concept which emphasizes that "It builds my organizational knowledge and ability to get things done" garnered the lowest weighted mean.

In connection with the analysis above, a study confirmed it. That study revealed that one of the effects of job rotation in this company have on the employees are improved knowledge and skills. The knowledge and skills are categorized into technical (accounting and finance), business (how the company operates in the national and international milieu) and administrative (communications, planning and computers). Likewise, rotated-employees perceive an improvement in their skills acquisition, career satisfaction and motivation, networking, strategic issues, and personal awareness (their strengths, values and management styles). The observed costs in job rotation are increased workload and decreased productivity and learning curve. (Khan, 2010)

## Internal Control

Table 9 will show the effects of job rotation to the internal control of the employees.



|                                                                                                                                  | Weighted Mean | Verbal Interpretation | Ranking |
|----------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|---------|
| This leads to effective operations and to produce quality products and services stated in our organization's vision and mission. | 4.52          | Strongly Agree        | 1       |
| Job rotation helps the organization with regards to internal control.                                                            | 4.44          | Strongly Agree        | 2       |
| By job rotation we work together to provide a level of comfort to an organization.                                               | 4.4           | Strongly Agree        | 3       |
| I become more cautious in doing my job.                                                                                          | 4.04          | Agree                 | 4       |
| These minimize the possibility to operational failure, over spending or other actions inconsistent with policy.                  | 3.84          | Agree                 | 5       |

Table 2.9 clearly showed the effects of job rotation in the internal Control of employees. The concept with the highest weighted mean is "This leads to effective operations and to produce quality products and services stated in our organization's vision and mission" with a weighted mean of 4.52. And the lowest weighted mean is "These minimize the possibility to operational failure, over spending or other actions inconsistent with policy" with a weighted mean of 3.82. Thus, job rotation is effective in the internal control of the employees.

It corresponded to the study which found out that job rotation is a useful experience for education of individuals whom have potential talent for holding senior organizational positions. Thus, it is necessary for them to work in different organizational units in order to acquire essential organizational knowledge for fulfillment of future responsibilities and duties (Abtahi, 1997, p: 93).

## Conclusion

Based on the results and findings of the study, conclusions are hereby drawn.

1. All of the respondents involved in this study were qualified to handle the position being assigned to them.
2. All of the respondents are flexible enough to easily cope and adjust to their new job and co-workers.
3. Majority of the respondents learned new skills and provide different responsibilities when they are being rotated.
4. By job rotation employees learned to synergize to others to effective operation and to produce quality product and services.
5. All of the respondents stated that job rotation is a very good strategy used by the institution to develop their skills and be more knowledgeable.

## Recommendations

Based on the findings and conclusion the following recommendations are presented:

1. The employees should be rotated to the other job positions within the organization in order for them to be motivated to become effective and efficient workers. Thus, prepare them for their future career growth as well as to aid the organization's human resource planning.
2. The institutions must also clearly identify and discuss the advantages of Job rotation to the employees for individual career development especially in employees' knowledge, working condition, job performance and internal control.
3. Organizations must also give emphasis on job rotation which evidently has given not only an improved employee career development but also helped the organization in moving towards their organizational goals as well as in the direction of their vision and mission by addressing skills that are not enhanced by the program through specific training programs and management coaching.
4. Job rotation must also be used in every organization especially with internal control problems to at least minimize and consequently eliminate fraud and deviation of organization's operation and system policies.
5. Organizations must proactively use job rotation for all employees as well as for those in professional or managerial jobs to give special attention on equal employment opportunity. This may be of great worth for developing employees in all types of jobs.
6. Implement specific methods of maximizing benefits and minimizing costs of rotation like increasing employee career and benefits awareness by ensuring them that they are reflected on their specific career development plans, decreasing also workload costs by managing the job rotation timing which also supports the operation of the business to run smoothly with the existent job rotation.



7. Organization should also link the rotation with the employees' specific career development plans.
8. Future researches can also be conducted for further investigation on the effects of job rotation on the employee as well as on the organization and can adapt job rotation design that will enhance the effectiveness of job rotation.

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## **Social Networking, Etiquette and Social Relationships in Teens' Interpretive Communities**

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### **Abstract**

Social network penetration is incredibly high in the Philippines, reaching 95%. Facebook is the country's most popular website, more so than Google, and has a penetration rate of 93.9%. The Philippines is also the eighth most popular country for Twitter use on a global scale, with a penetration rate of 16.1%. The popularity of photo sharing has increased by 46% in the country in one year, largely due to Facebook. In this light, this study aimed to identify the behaviour of social media users as to the use of social networking sites. The researchers made use of descriptive method in the conduct of the study. The respondents of the study interviewed students of Lorma Colleges, Urbiztondo, San Juan, La Union. A questionnaire based on the perception of teens in using the different social networking sites was used to gather the data. The researchers concluded that teens could still manage to browse, read and like posts, upload photos and videos, share links, and the like during weekdays despite of the busy schedule since social networking sites already have an application ready to install on mobile phones, students can just easily open their Facebook accounts right after their class was dismissed. Social networking sites became a way of expressing a person's feelings through words or pictures. Social networking sites serves as blog site for the users to share to their friends their experiences. Code-switching is prevalent in their status updates. Instead of sticking on one language, they will also use other languages for other people to understand more on what the person wants to express. As for privacy, most of the users have inhibitions or privacy issue when dealing with their parents or relatives who have SNS accounts.

Keywords: Social Networking sites, etiquette, privacy, experiences

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## Introduction

Social network penetration is incredibly high in the Philippines, reaching 95%. Facebook is the country's most popular website, more so than Google, and has a penetration rate of 93.9%. The Philippines is also the eighth most popular country for Twitter use on a global scale, with a penetration rate of 16.1%. The popularity of photo sharing has increased by 46% in the country in one year, largely due to Facebook. Social networking is so popular among Filipinos, the country has been nicknamed "The Social Networking Capital of the World." This is based on a research from blog 24/7 Wall Street who compiled a list of countries where Facebook penetration (usage per population) is highest.

In a global study called Wave7, Filipinos are using social media to primarily connect with their families living overseas. As of this writing, there are more than 11 million Filipinos living outside the Philippines. Social media has become a way for them to communicate with their families and friends instead of using overseas call and text, which are the traditional ways of communication.

The Wave project was first conducted in 2006 to measure the impact of social media across the globe. The Wave7 research surveys respondents from multiple countries, which in total represents 1 billion Internet users

Based on the aforementioned study, Filipinos use social media in different ways – broken down according to its respective activities: to keep company – 62%; to share new experiences to friends and followers – 63%; to have fun – 65%; to meet new people – 70%; to stay in touch with friends and family – 74%.

Furthermore, in the aforementioned study, Makati City, Philippines registered the highest number of selfie-takers than anywhere in the world- a total of 258 selfies per 100,000 people.

Indeed, the number of social networking site users continues to grow.

Over the years, the study has widened its study and strove to find that connection between human behavior and social media use. During the study's 7th year, the results clearly suggested that our behavior in social media are driven by inherent human truths that underpin consumer's relationship with products and brands. This is why we use social media in the first place: Relationship (sharing experiences and emotions), diversion (entertainment and relaxation), progression (career and financial status), recognition (expressing opinions and earning respect), and learning (exploring the world and keeping up-to-date)

If you look at it closely, the very activities mentioned earlier clearly satisfies these core needs: Relationship (stay in touch with friends and family), Diversion (have fun), Progression (share new experiences to friends and followers), Recognition (keep company), and Learning (meet new people)

Some people are using it for personal reasons. They are sharing their recipes, their photos and their ideas to stay up to date with their friends and family. Business people are using social networking sites to build their careers, promote their business and grow their reputations.

Social networking websites function like an online community of internet users. Depending on the website in question, many of these online community members share common interests in hobbies, religion, politics and alternative lifestyles. Once you are granted access to a social networking website you can begin to socialize. This socialization may include reading the profile pages of other members and possibly even contacting them.

As mentioned, social networking often involves grouping specific individuals or organizations together. While there are a number of social networking websites that focus on particular interests, there are others that do not. The websites without a main focus are often referred to as "traditional" social networking websites and usually have open memberships. This means that anyone can become a member, no matter what their hobbies, beliefs, or views are. However, once you are inside this online community, you can begin to create your own network of friends and eliminate members that do not share common interests or goals.



However, as the number of social media users grow significantly, we could not deny the reality the we are also experiencing a burgeoning cases of cyber bullying, social media wars, irresponsible posts, and empathy-deficit status. According to Google Trends, the fourth highest searching country worldwide for Cyber bullying is the Philippines. According to the report mentioned here, the term was searched for extensively all through 2013, this goes to show how Cyber Bullying in the Philippines is becoming an issue.

In this light, this study aims to identify the behaviour of social media users as to the use of social networking sites. This includes the reasons why they use SNS, the average number of status they post, the time they allot in using SNS, the number of selfie photos they take, and the way they post status in respect to spelling, grammar, contractions, and the like.

### **Research Objectives**

This paper deals with the use of Social Media by Ilocano youths studying in La Union. It examines the content of statuses they post in their Facebook accounts. This also identifies the number of selfie photos they post in the aforementioned social networking site. It also looks into their use of language, as well as relationships with their interpretive communities-parents, friends and classmates-- and the etiquette ("netiquette") that has emerged from cell social media use.

### **Research Design**

The descriptive method of research was used by the researchers in the conduct of this study. Adanza, according to Estigoy et.al 2006, defined the descriptive research as a method which is concerned with the condition and relationships that exists, practices that prevail, beliefs and processes that are going on an effects that are being felt or trends that are being developed.

### *Population and Locale*

This study was conducted in the LORMA Colleges Special Science High School. There are 10 students, identified through purposive sampling, who served as the respondents of this study.

### *Sources of Data*

The researchers conducted semi-formal interviews with the respondents. Along with this, the researchers kept track of the Facebook activities of the respondents within a month. The researchers print- screened the status updates of the respondents from January to February. The number of photos and videos uploaded and shared was also identified.

### *Data Gathering Procedure*

The researchers asked permission from the principal, Mrs. Elizabeth R. Camara to conduct interviews on the identified students. The interview served as a way for the researchers to determine the purpose of the respondents in using Facebook, frequency of using Facebook, and their 'social media relationship' with their parents and their attitude towards bashing.

Also, the researchers kept a track on the Facebook activities of the respondents within a month. This was to monitor the number of status posted by the respondents, and photos and videos uploaded and shared.

### *Tools for Data Analysis*

The researchers did not employ any complex statistical tool to interpret data gathered. Nonetheless, frequency and rates were used for the frequency of Facebook use and respondents' activities in Facebook .

### **Results And Discussions**

Table 1 shows the respondents' frequency of social media use. The researchers determined the average number of hours the respondents allot to use their Facebook accounts during weekdays and during weekends. It can be gleaned from the said table that 50% of the respondents use Facebook for about five hours and below during weekdays; whereas, 50% use Facebook for about six up to 10 hours during weekdays. This means that despite





the busy schedule of the respondents as students, still, they could manage to browse, read and like posts, upload photos and videos, share links, and the like.

Table 1. *Respondents' Frequency of Social Media Use (per day)*

| No. of Hours | Weekdays (%) | Weekends (%) |
|--------------|--------------|--------------|
| 0-5          | 50           | 30           |
| 6-10         | 50           | 60           |
| 11-above     |              | 10           |

*Dianne: "Yes po. Minsan po late na ako nakakatulog kasi nagfa-facebook pa ako. Madalas naman na tinatapos ko muna yung mga assignments ko before mag-facebook. Pero may mga times rin naman na nakakalimuta kong gumawa ng assignment."*

*Translation: Yes. Sometimes, I would go to sleep late because I am still using Facebook. Most often than not, I see to it that I would do first my assignments before I would log in to Facebook. But there are also times that I forgot to make my assignments because of Facebook.*

During weekends, 60% of the respondents use Facebook for about 6 up to 10 hours. This implies that the respondents have more available free hours during weekends since teachers seldom give assignments during weekends.

*Tonnie: "I love weekends. I don't have to sleep early and wake up early to go to school. That's why I could stay late at night using Facebook, Twitter, and Instagram since I don't have to wake up early the next morning."*

Table 2. *Respondents' Facebook Activity in One Month*

| Activity              | Frequency | Rates |
|-----------------------|-----------|-------|
| Status Updates        | 172       | 47.91 |
| Photo /Selfie Posting | 114       | 31.75 |
| Video Sharing         | 28        | 7.80  |
| Photo Sharing         | 38        | 10.58 |
| Video Uploading       | 5         | 1.39  |
| Links Sharing         | 2         | 0.57  |
| Total                 | 359       | 100%  |

Table 2 presents the respondents' Facebook activities within a month. The respondents, collectively, registered a total of 359 posts classified into different areas. It can be gleaned from the table that 47.91% of the total posts are status updates or textual posts. There are no better ways to express ourselves aside from the use of the human words. Meanwhile, it comes as no surprise that 31.75% of the total posts are selfies of the respondents since the number of selfies taken has been incredibly increasing recently. Picture speaks a thousand words as they say. So, taking and uploading selfies in the Facebook is an avenue for the respondents to express themselves.

*Tonnie: "Sometimes I am happy. And I just don't want to say "Hey guys! I am happy". So instead, I'll just take a selfie, post it, and let the photo tell to the world that I am happy."*

Furthermore, the respondents are not into sharing links to their timelines or their friends' timelines as it registered only 0.57% of the total number of posts.

The United States spent 121 billion minutes on social media sites in July 2012 alone, according to Nielsen's annual Social Media report. That's 388 minutes — or 6-1/2 hours — per person (if every person in the U.S. used social media). Altogether, that's 230,060 years we spent staring into the glaring screen of so-called sharing.

#### *Purpose of Using Facebook*

Facebook is indeed an avenue for self-expression. Through the years, it became a platform for such. The respondents use their Facebook accounts to express their feelings, be it they are happy, sad, mad, and the like.



*Jastine: "Posting became one of my hobbies because I like to express my feelings. Even though I am not that pretty in my pictures I just want to show what I am and what I feel."*

*Raven: "I guess I use social networking sites to let other people know what I feel about the things and events that happen around me everyday"*

*Alaezandra: "Ginagamit ko siyang way para maglabas ng sama ng loob"*

Translation: *I use Facebook as a way to release my anger.*

*Allyson: "Yung sa pictures mo, dun mo naexpress yung feelings mo. Sa status mo nalalabas yung galit mo or ano"*

Translation: *Through your pictures, you can express your feelings. In your status. You can blurt out your anger or what*

At times, the real world cannot provide us the proper outlet to express what we feel. At times, we don't have anyone to talk to; thus, we go for Facebook, write status and there, we let our emotions be expressed through words or photos.

*Jamie: "If no one understands me, I post. Like, it's where I can express my feelings."*

Also, the respondents use their Facebook accounts to share their experiences. Facebook serves a blog site for the users to share to their friends their experiences about what happened on their day, something terrible that happened on their day, something about their travel and the like.

*Khendall: "For sharing experiences of course, because I find it nonsense if you will just use social networking sites to express your feelings."*

And of course, Facebook is an effective medium for communication. Gone are those days when people have to write and send a snail mail to someone which takes time to be received by the receiver. Now, we can use Facebook as a faster way to reach out to other people.

*Jastine: "...and also for communication. It is easier to say hello to someone, to greet him/her during his/her birthdays, to ask if they're okay, or what. With a click, messages can be sent and received that fast."*

#### *Nature of Status Updates*

##### *#Hugot*

People post lines that have very deep analogy. These lines, called *Hugot lines* in the Filipino culture, are about universal truth connected by the speaker to anything that exist in his world. These are lines that state analogies and realities about life, love, success, failure, and the like. Such universal truths are not just, most often than not, are inspired by what the Facebook user has been experiencing recently. Usually, they are witty and, at times, funny.

##### *#DearDiary*

Through Facebook, people are able to tell to their friends what happen on their day. They can share the happenings in their lives from the most exciting down to the most terrible thing that happened to them. They share real-life dialogues. They tell about how their crushes made their day, and the like. They share stories.

##### *#Bitter #Patama*

Facebook users use Facebook to express their disgust to someone or something. They use it as a medium to indirectly bash someone. Since they could not tell it bluntly to the person, they use Facebook as an arena for that.



### *#TanongKoLang*

The users use Facebook to raise some questions. The users pose random questions that might need to be answered or not.

### *#Jokes*

Jokes are perennially present in the Filipino social media culture. But it had transcended the boundaries of texting. Jokes are also well-punched on social networking sites. The users use jokes that make others break into laughters.

### *#Rant*

Facebook users use Facebook to release their tension, their anger. They see it as a safe medium to express how something pisses them off. In a recently published sentiment analysis study of 200,000 users of Weibo, a Twitter-like Chinese social media service, researchers at Beihang University in China found angry messages were more likely than other emotionally charged messages to spread quickly across your social network. According to Tech Review, "the results clearly show that anger is more influential than other emotions such as joy or sadness."

### *#Advice*

The respondents also use Facebook to dispense pieces of advice directed either to a specific person (done through tagging the person) or to the general public or audience.

### *#Quotes*

Be it a popular quotation from the most symbolic hero, to the best-selling author, to the most touching song, to the most remarkable poetry, and to the most dramatic, award-winning, and top-grossing films, Facebook users can't get enough of quotations or lines to post on their timelines.

*Rhyst: "Don't hate me 'cause I'm beautiful. Don't hate me 'cause I'm beautiful." - Keri Hilson.*

While most users only want to share the beauty of the lines, some also use quotations for granted. They just search for a quotation in Google, copy and paste it in the status wall, then click post and there it goes, the quotation would reap likes and even shares later on.

### *Use of the Language*

Spelling has radiated a feeble glow in the light of social networking. The subjects, intentionally or not, have devised their own ways of expressing themselves in words.

Each of the status updates posted by the respondents contained, on the average, eight alterations in mechanics (e.g. punctuations) and spelling which may be classified into clippings (missing end letters), contractions (missing middle letters), number/letter homophones (combination of letters and numbers), non-conventional spellings and phonological approximations

*Tonnie: "Ung ang gwapo n crush pinaguusapan nm n ni nikki taz bglang nasa fire exit xa nririnig lahat ng cnabi ko. hhhahaha chey havey!!!"*

*Transcription: "Iyong ang gwapo ni crush pinag-uusapan namin ni Nikki tapos biglang nasa fire exit siya naririnig lahat ng sinabi ko. Hahahaha chey havey!!!"*

*Translation: That moment when my friend and I are near the fire exit talking about our handsome crush and all of the sudden he's actually there listening at your conversation. Hahaha. Awesome.*

### *Code-Switching*

Code-switching refers to a shift from one language to another in a discourse among bilinguals. It can occur within the sentence (intrasentential) or between sentences (intersentential) (Cunanan, 2004; Duran, n.d.) to fill a conceptual or linguistic gap or for other purposes (Gysels, 1992).



The study revealed code-switching is prevalent in the status updates of the respondents.

*Allyson: Ang babae madaling mafall yan. Kaya kung wala kang balak na mahalín, please lang wag mo landiin*

*Translation: A girl easily falls in love. So if you don't have any plans to of loving her back, please don't flirt with her then.*

*Khendall: If true love awaits. San ba waiting area? Nang mahintay ka.*

*Translation: If true love waits, where's the waiting area? So I could wait for you.*

*Tonnie: Ahhhhhh finaly me time before valentines hahahahaha lol magisa here at ortigas*

*Translation: Finally got a "me-time" before valentines. Hahahaha. Lol. Alone here at Ortigas.*

### **Social Networking And Relationships**

Nowadays, having account in social media is not limited to young ones but also to the young at hearts. Social networking sites have been able to invade not only the youth sector but all ages as well. SNS have been an arena where people of different generations meet. Students add their classmates in their Facebook account, students add their teachers, parents add their children, and grandparents add their grandchild and so and so forth.

The respondents have different views on befriending close relatives like parents, siblings, aunts, uncles, and the like in Facebook. Most of them admit that their parents and other close relatives, who have Facebook accounts, are on their friends' list. However, they prefer to limit some of their status so as for their parents and other relatives not to read them. Some of them said they don't want their parents know about their whereabouts. Some said because they don't want their parents see how they use trash talks or rude words in their statuses. Some of them even creates another account which they could use to connect with their relatives in Facebook. This serves as their "dummy account". They then block their relatives in their real account. This shows that some social media users have inhibitions or privacy issue when dealing with their parents or relatives who have Facebook accounts. Limiting their posts from them, or worst, blocking them are the manifestations of such.

Relationships in Facebook are not limited to friendship. At times, social media users reap enemies, social media stir war. This results from unhealthy exchange of ideas and even irresponsible posting or commenting on posts. Bashers, we call them, are those social media users who always have something bad to say about you-your status, photos, videos, and the like. At times, bashers are defined as haters. This study revealed the different ways on how social media users react or deal with bashers. Some have the Fight/Flight Attitude. Some of them prefers to give bashers a good fight by responding to them.

While most of them would prefer to fight, it would always boil down to unfriending or blocking them on their Facebook accounts. While some would just not fight back, but block them instead.

Nonetheless, there are also respondents who exercise the art of "deadma". They just ignore the bashers, neither they fight back or block/unfriend them.

### **Conclusion**

The researchers conclude that teens could still manage to browse, read and like posts, upload photos and videos, share links, and the like during weekdays despite of the busy schedule since social networking sites already have an application ready to install on mobile phones, students can just easily open their Facebook accounts right after their class was dismissed. Students also spend more time using these sites during weekends the respondents have more available free hours during weekends since teachers seldom give assignments during weekends.



Social networking sites became a way of expressing a person's feelings through words or pictures. Social networking sites serves as blog site for the users to share to their friends their experiences. Social networking sites are an effective medium for communication. It's easier for us to reach out other people and communicate with our friends, relatives and loved ones.

As stated, social networking sites became a way of expressing a person's feelings through words or pictures and since teenagers are from ages 12-19, it is the stage where they discover, explore and learn new things in life. Teens usually post status updates based on their experiences in their daily life. They post lines that state analogies and realities about life, love, success, failure, and the like. They also share the happenings in their lives from the most exciting down to the most terrible thing that happened to share stories. They share real life dialogues and share stories. They use social networking sites to express their disgust to someone or something. They use it to indirectly bash someone since they could not tell it bluntly to the person. They also post random questions that might need to be answered or not. They post jokes that make others break into laughter. They also use social networking sites to release their tension, their anger. They see it as a safe medium to express how something pisses them off. They also use it to dispense pieces of advice directed either to a specific person or to the general public or audience. Some can't get enough of quotations or lines to post to their timelines.

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## Knowledge and Preventive Practices against Schistosomiasis in an Endemic Rural Community, Samar Province, Philippines

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### Abstract

Objective: Knowledge, and preventative practices of farmers for neglected tropical diseases such as schistosomiasis is important aspects for their control. This study aimed to assessed the health knowledge and preventive practices of farmer and fisherfolks against schistosomiasis in Gandara, Samar. Methods: cross-sectional study conducted using 140 randomly selected farmer and fisherfolks. Results: The data was gathered through the use of standardized questionnaire developed by HD Mazigo et al. Knowledge of the respondents towards schistosomiasis has significant relationships with their age and income. Preventive Practices towards Scistosomiasis has significant relationships with the Toilet facility. Conclusion: there was still a lack of understanding concerning transmission schistosomiasis . Consequently modifying their and behavioral practices related to schistosomiasis transmission is highly recommended.

Key words: Farmers, Knowledge, Preventative practices, Schistosomiasis, Transmission

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## Introduction

Schistosomiasis remains one of the most prevalent parasitic infections and has significant economic problem especially in agriculture sector. While the distribution of schistosomiasis has changed over the last 50 years, and there have been successful control projects, the number of people infected or at risk of infection has not reduced (Ajanga et al., 2006). It is estimated that more than 200 million people are infected, of whom 120 million are symptomatic and 20 million have severe disease (Obonyo, Muok, Mwinzi, 2010). Obonyo, Charles O, Muok, Erick MO, Mwinzi, Pauline NM (2010). Efficacy of artesunate with sulfalene plus pyrimethamine versus praziquantel for treatment of *Schistosoma mansoni* in Kenyan children: an open-label randomised controlled trial. This disease is caused by the parasite *Schistosoma*, a fluke with a lifecycle including man as the definitive host and a fresh water snail as the intermediate host. This snail is commonly found in the moist, and watery surroundings particularly in the rice fields.

Moreover, there were several reported outbreak of this disease in Cameroon, Guinea, Malawi, Senegal and Zimbabwe (Taylor and Makura, 2005; Teesdale and Chitsulo, 2005;). In China, only about 52% of the inhabitants had some knowledge on schistosomiasis (Huan Zeng et al, 2011). In Tanzania, lack of health education creates misunderstanding of the nature of the disease and the human role in its transmission. In Zimbabwe, (Okafor, 2000) results of studies regarding knowledge, attitudes and practices in schistosomiasis has demonstrated a critical need for targeting health messages among endemic communities (Wang et al., 2013). Meanwhile, In the Philippine, there are 560,000 known cases of the disease (Tiglaio, 2012). This disease is largely caused by human behaviour, principally contamination and incorrect water use practices which is highly prevalent in rural communities (Chitsulo., 2000). In addition, the population in rural areas is growing exponentially in the country; thus more and more individuals are becoming at risk of contracting schistosomiasis. Over 50% of the endemic population of the country live in poverty, with rudimentary water, sanitation, and hygiene. In such communities, self-medications with antihelminthic drugs are common but they are often misused because of lack of education (Crompton, 2001). One of the consequences of such self-medication and antihelminthic drug misuse includes suppression of the egg laying capacity of schistosomes and other worms. There were also strong evidences to show that carabao can also contribute significantly to disease transmission (Olveda 2006).

Furthermore, it is a common practice for people living in remote and rural areas, with poor knowledge on hygiene, to contaminate available water bodies with their excreta. This action provides chances for schistosomes to reach their intermediate hosts and to develop to infective stage. In rural communities where the major occupation is farming and the farmlands are located across the water sources, adults as well as children are exposed to such water bodies that harbor intermediates and infective stages of the parasites. All the farmers surveyed in Leyte, reported diminishing crop sales resulting in low standard of living and infection. Although these adults may have developed some sort of immunity to the disease, daily exposure to infested water would result in acquiring new infections which may cause worse outcomes. In order to halt transmission of the parasite in such community, treatment regimen as well as other control programmes such as community awareness was necessary. Gloria (2003) found out of health education is effective means to prevent schistosomiasis in Northern Leyte with particular emphasis on the factors influencing such beliefs and practices. Moreover, Samar province ranked 7th in the top ten endemic provinces for prevalence of the disease (2006). One of its endemic municipality is Gandara, Samar which account of 40 % prevalence rate (Schistosomiasis Control Unit - Samar, 2014). Although there were mass treatment, conduct sentinel surveillance through stool examination, increase household access to toilet and safe water facilities, still the prevalence rate is very high. There were also no empirical data concerning its knowledge and preventive practices against this disease among farmers and households. This clearly demonstrates that schistosomiasis remains a major public health problem in the province. Thus, the researcher was motivated to conduct this investigation.

Finally, this study would help the farmers, Local Government Units, Healthcare providers to strengthen health programs and redirect policies regarding prevention of schistosomiasis. This also enlighten them that knowledge is not only man factor to treat this disease but also their practices.

## Objective



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This investigation developed to assessed the health knowledge and preventive practices of farmers against schistosomiasis in Gandara,Samar.

### Methodology

Cross sectional design was utilized to assesses assessed the health knowledge and preventive practices on schistosomiasis in Gandara,Samar.

The researchers utilized random sampling technique in the schistosomiasis Barangays of Barangay Diaz, Barangay San Miguel and Barangay Villaleona, Gandara Samar. There were one hundred and forty (140) people presented as the sample respondents.

The main source of data of the study was gathered through the use of standardized questionnaire. There were three parts of questionnaires. Part 1, pertains the demographic profile such as name (optional), age, sex, educational attainment, occupation, and the respondents' monthly family income. Part 2, assesses the knowledge of the respondents on Schistosomiasis. This standardized instrument was developed HD Mazigo et al. It consists of 5 facets with underlying questions. First facet assessed about the respondent's knowledge to the cause of Schistosomiasis that consists of 4 questions. The second facet assessed for the respondent's knowledge about the signs and symptoms of Schistosomiasis. The third facet assessed the respondent's knowledge on how Schistosomiasis is transmitted. The fourth facet assessed the respondent's knowledge about the places that can be mostly infested with Schistosomiasis. Lastly, the fifth facet assessed the respondent's knowledge on how to prevent acquiring of schistosomiasis. Part 3 concern the respondent's practices which also developed HD Mazigo et al. It is made of a table with a scale from 1-5 on how frequent they do the corresponding practices as questions.

The researchers sought the approval of the Barangay Captain in Brgy. San Miguel, Diaz and Brgy. Villaleona to conduct the research study. In gathering data, the respondents were informed with the objective of the study. The researchers asked personally the respondents by the use of questionnaire with a direct Tagalog and Waray-Waray dialect, for them to understand well and to ensure a highly percentage of feedback. The data gathering process was August 2014. Each respondent were given enough time to answer each question, with this they were informed that all answers they revealed will remain confidential, the whole research instruments were accomplished according to the purpose of this study. Before the start of the study, a structured questionnaire was developed and pre-tested for ascertaining consistency and appropriateness of language using school children different from the ones who participated in the study.

In presenting the profile of the respondents, frequency counts, percentage, mean and standard deviation was used. Pearson r coefficient correlation Fisher's t Test was used to determine the significance of the correlation between the knowledge, practices to their demographic profile.

### Results and Discussion

#### Age of the Respondents

Table 1.1 shows the age of the respondents, it found out 29 or 20.7% respondents have the age bracket between 27 – 33 years old, the highest bracket among the respondents. Meanwhile, there were 5 or 3.6 % of the respondents have the age bracket between 69 – 75years old. The lowest bracket among the 44 respondents. It has a mean of 38.72 with standard deviation of 4.70.

Table 1. *Age of the Respondents*



| Age     | Frequency (f) | Percentage (%) |
|---------|---------------|----------------|
| 12 - 19 | 11            | 7.9            |
| 20 - 26 | 22            | 15.7           |
| 27 - 33 | 29            | 20.7           |
| 34 - 40 | 15            | 10.7           |
| 41 - 47 | 25            | 17.9           |
| 58 - 54 | 14            | 10.0           |
| 55 - 61 | 10            | 7.1            |
| 62 - 68 | 9             | 6.4            |
| 69 - 75 | 5             | 3.6            |
| Total   | 140           | 100            |
| Mean    | 38.72         |                |
| SD      | 4.70          |                |

#### Sex

Table 1.2 shows the sex distribution of the respondents. The largest proportions of the respondents were females which constituted of 83 females with 59.3 percent and the remaining 57 were males which constituted of 40.7 percent.

*Table 2. Sex of the Respondents*

| Sex    | Frequency (f) | Percent (%) |
|--------|---------------|-------------|
| Male   | 57            | 40.7        |
| Female | 83            | 59.3        |
| Total  | 140           | 100.        |

#### Educational Attainment

Information regarding the educational attainment of the respondents is reflected in table 1.3. It can be gleaned from the table that the most number of respondents are high school level with 26.4 percent. Moreover, 2.9 percent of all the respondents have given the chance to graduate in college.

*Table 3. Educational attainment of Respondents*

| Educational attainment | Frequency (f) | Percentage (%) |
|------------------------|---------------|----------------|
| Elementary level       | 35            | 25.0           |
| Elementary graduate    | 25            | 17.9           |
| High school level      | 37            | 26.4           |
| High school graduate   | 30            | 21.4           |
| College level          | 8             | 5.7            |
| College graduate       | 4             | 2.9            |
| No Schooling           | 1             | .7             |
| Total                  | 140           | 100            |

Occupation. Table 1.4 contains data regarding the occupation of the respondents. It clearly seen that almost all of the respondents were farmers with 140 or 100 percent.

*Table 4. Occupations of Respondents*

| Occupation | Frequency (f) | Percentage (%) |
|------------|---------------|----------------|
| Farmer     | 140           | 100            |
| Total      | 140           | 100            |

#### Average Family Monthly Income

Table 1.5 reflects the average family monthly income of the respondents. It clearly shows that the greater proportion of the respondents' monthly income consisting of 92.9 percent had an income ranged of below 6,000



pesos. Meanwhile, 1.4 percent of the respondents had an income between 10,000 to 15,000 pesos. Further reflected in the table is the mean family's monthly income of 1557.207 pesos with the standard deviation of .429.

**Table 5. Family's Monthly Income of Respondents**

| Income              | Frequency (f) | Percentage (%) |
|---------------------|---------------|----------------|
| Below Php 6,000     | 130           | 92.9           |
| Php 6,000 -10,000   | 7             | 5.0            |
| Php 10,000 - 15,000 | 2             | 1.4            |
| Php 20,000 - 25,000 | 1             | .7             |
| Total               | 140           | 100.0          |
| Mean                | 1,557.207     |                |
| SD                  | .429          |                |

#### *Toilet facility*

Table 1.6 discussed the frequency of toilet facility among the households. It found out that 98 or 70 percent of respondents have toilet facilities while 42 or 30 percent have no toilet facilities at home.

**Table 6. Toilet facility**

| Toilet facility      | Frequency (f) | Percentage (%) |
|----------------------|---------------|----------------|
| With toilet facility | 98            | 70             |
| Without              | 42            | 30             |
| Total                | 140           | 100            |

Respondent's Health Knowledge about the Cause of Schistosomiasis Table 2 presents the answers concerning the knowledge of respondents about schistosomiasis. Its cause, symptoms, transmission, areas one can get affected with and lastly about preventive and control measures of schistosomiasis. Out of 140 respondents, 123 of them answered correctly that the cause of schistosomiasis is dirty water and that is the highest statement for the knowledge related to cause, 87.9 percent. And only 71 of them answered that worms are also the cause of schistosomiasis composing of 50.7 percent. This means that almost half of the respondents don't know the cause of transmission was through oncomelania snail as a medium of miracidium and not a worm. For the symptoms the highest percentage is 75.7 percent and belongs to the statement that abdominal pain is the most common and known symptoms of schistosomiasis. Unaware that pain during micturition is also a symptom of this disease proving that only 31 out of 140 respondents answered correctly with 22.1 percent. When it comes to the transmission of schistosomiasis 121 out of 140 respondents answered correctly that schistosomiasis can be transmitted through swimming in dirty water with 86.4 percent as the highest percentage for all of the statements related to it and only 70 out of 140 respondents answered correctly that schistosomiasis can be transmitted through urinating in water composing only 50 percent and being the least correct statement. For the third division of the knowledge, as for the areas that can be infected the highest percentage of 87.1 percent belongs to statement number 1 stating that rivers can be infected with schistosomiasis and the least which is 42.1 percent belongs to the last statement that toilets can also be infected, with only 59 out of 140 respondents answered correctly. And for the last about preventive and control measures got the highest percentage of 81.4 percent belongs to the statements 3 and 9, consecutively stating that avoiding defecating in lakes and hand washing can actually prevent schistosomiasis with 114 respondents answered correctly and the least percentage of 70.7 percent belongs to the statement that wearing gloves can also prevent schistosomiasis. Thus, the result states that those least information that were being disregarded by people is actually plays a vital role in relation to schistosomiasis. Their overall rate of knowledge was congruent to the Department of Health(DOH) program which set a goal that 80% of the population should have basic knowledge of schistosomiasis and its prevention methods (Ayala,2011). In addition, analysis about the source of knowledge uncovered that respondents mainly found out about the disease from rural health units, through information dissemination. This indicates that health education is critical people to learn about the disease, and thus recognize and manage their health problems. This is worth noting since previous study found out that health education may be considerably important to prevent schistosomiasis, particularly after long-term implementation (Ross,2013). Another study discusses that health education is a fundamental and sustainable way to raise community awareness about appropriate behaviors and preventive measures for schistosomiasis (Wang,2013).



Table 7. *Knowledge on Schistosomiasis*

| KNOWLEDGE ON SCHISTOSOMIASIS                                              | Yes | Percentage(%) | No  | Percentage(%) | Total of correct answers |
|---------------------------------------------------------------------------|-----|---------------|-----|---------------|--------------------------|
| <i>Knowledge on the cause of schistosomiasis</i>                          |     |               |     |               |                          |
| Worms as a medium host for schistosomiasis                                | 71  | 50.7          | 69  | 49.3          | 71                       |
| Dirty water causes schistosomiasis                                        | 123 | 87.9          | 17  | 12.1          | 123                      |
| Swimming in lakes causes schistosomiasis                                  | 116 | 82.9          | 24  | 17.1          | 116                      |
| Drinking dirty water causes schistosomiasis                               | 108 | 77.1          | 32  | 22.9          | 108                      |
| <i>Knowledge about the symptoms of schistosomiasis</i>                    |     |               |     |               |                          |
| Abdominal pain is a symptom of schistosomiasis                            | 106 | 75.7          | 24  | 24.2          | 106                      |
| Haematuria is a symptom of schistosomiasis                                | 63  | 45.0          | 77  | 65.0          | 63                       |
| Pain during micturition is a symptom of schistosomiasis                   | 31  | 22.1          | 109 | 77.9          | 31                       |
| Swelling of the abdomen is a symptom of schistosomiasis                   | 105 | 75.0          | 35  | 25.0          | 105                      |
| <i>Knowledge about the transmission of schistosomiasis</i>                |     |               |     |               |                          |
| Schistosomiasis can be transmitted through swimming in dirty water        | 121 | 86.9          | 29  | 13.1          | 121                      |
| Schistosomiasis can be transmitted through air                            | 96  | 68.6          | 44  | 32.4          | 44                       |
| Schistosomiasis can be transmitted through sexual intercourse             | 91  | 65.0          | 49  | 45.0          | 49                       |
| Schistosomiasis can be transmitted through urinating in water             | 70  | 50.0          | 70  | 50.0          | 70                       |
| Schistosomiasis can be transmitted through defecating in water            | 90  | 64.3          | 50  | 35.7          | 90                       |
| Schistosomiasis can be transmitted through stepping over human feces      | 102 | 72.9          | 38  | 27.1          | 102                      |
| Snails transmit schistosomiasis                                           | 93  | 66.4          | 47  | 33.6          | 93                       |
| Mosquitoes transmit schistosomiasis                                       | 102 | 72.9          | 38  | 27.1          | 38                       |
| <i>Knowledge about areas one can get infected with schistosomiasis</i>    |     |               |     |               |                          |
| Person can be infected with schistosomiasis in lakes                      | 122 | 87.1          | 28  | 12.9          | 122                      |
| Person can be infected with schistosomiasis in rivers                     | 101 | 72.1          | 39  | 27.9          | 101                      |
| Person can be infected with schistosomiasis in rice fields                | 103 | 73.6          | 47  | 26.4          | 103                      |
| Person can be infected with schistosomiasis in an open air                | 112 | 80.0          | 28  | 20.0          | 28                       |
| Person can be infected with schistosomiasis in water collection areas     | 92  | 65.7          | 38  | 34.3          | 92                       |
| Person can be infected with schistosomiasis in toilets                    | 59  | 42.9          | 81  | 57.1          | 81                       |
| <i>Knowledge about preventive and control measures of schistosomiasis</i> |     |               |     |               |                          |
| Avoiding swimming in lakes prevents schistosomiasis                       | 113 | 80.7          | 27  | 19.3          | 113                      |
| Avoiding urinating in lakes prevents schistosomiasis                      | 109 | 77.9          | 31  | 22.1          | 109                      |
| Avoiding defecating in lakes prevents schistosomiasis                     | 114 | 81.4          | 26  | 18.6          | 114                      |
| Use of toilets when defecating prevents schistosomiasis                   | 107 | 76.4          | 33  | 24.4          | 107                      |
| Wearing of slippers prevents schistosomiasis                              | 103 | 73.6          | 37  | 24.7          | 103                      |
| Wearing of boots prevent schistosomiasis                                  | 113 | 80.7          | 27  | 19.3          | 113                      |
| Wearing of gloves prevent schistosomiasis                                 | 99  | 70.7          | 41  | 29.3          | 99                       |
| Avoiding the use of water from river prevents schistosomiasis             | 107 | 76.4          | 33  | 24.6          | 107                      |
| Handwashing prevents schistosomiasis                                      | 114 | 81.4          | 26  | 18.6          | 114                      |
| Boiling water before drinking prevents schistosomiasis                    | 113 | 80.7          | 27  | 19.3          | 113                      |

*Respondent's Preventive Practices on Schistosomiasis.*



Practices on schistosomiasis is a synthesis of the people's interpretation and perception on schistosomiasis which affect their behavior, attitudes and reactions to the problems. Table 2.3 discusses the significant findings on the preventive practices towards schistosomiasis.

The statement "Avoids swimming in rivers" has a weighted mean of 2.94 which interpreted as Moderately Extent of practice. Then, "Avoids urinating in rivers" which has a weighted mean of 3.01 which interpreted as Moderately extent. Next, "Avoids defecating in rivers" which has a 3.52 which interpreted as Great extent. "Uses toilet when defecating" has a weighted mean of 2.90 which interpreted as Moderately Extent. "Wearing slippers" has a weighted mean of 4.41 which interpreted as Great extent. "Wear boots in the rice fields" has a weighted mean of 2.96 which interpreted as Moderately extent. Then, "Wear gloves in the rice fields" has a weighted mean of 2.26 which interpreted as Limited extent. "Avoids use of water from river when washing clothes" has a weighted mean of 2.66 which interpreted as Moderately extent. "Wash hands and feet after contact with dirty water" 3.64 which interpreted as Great extent. Finally, "Boils water before drinking it" has a weighted mean of 2.60 which interpreted as moderately extent. As the respondents indicated that drinking un-boiled water was responsible for schistosomiasis transmission; a wrong practice which strongly demonstrating that there is a critical need for targeting health education messages both to health workers and the communities. As long as the at risk population is not adequately informed about the risky behavior, they will continue to spread the infection.

Most often, health education messages are conveyed in a way that appears irrelevant to local experience (Ogbe, 2012). The current data indicated that most people practice against health hazards that accrue from their unsanitary behavior but they had no control of this situation. Not everyone of the household has toilet facilities. Some people were aware that they got schistosomiasis through contact with the river, and rice fields community, where farming is the major source of main economic activity, contact with river water is inevitable.

Table 8. Respondents Preventive Practices on Schistosomiasis

| Responses                                          | Weighted Means | Interpretations               |
|----------------------------------------------------|----------------|-------------------------------|
| Avoid swimming in rivers                           | 2.94           | Moderately Extent of Practice |
| Avoid urinating in rivers                          | 3.01           | Moderately extent of Practice |
| Avoid defecating in rivers                         | 3.49           | Moderately extent of Practice |
| Uses toilet when defecating                        | 2.90           | Moderately Extent of Practice |
| Wearing slippers                                   | 4.41           | Great extent of Practice      |
| Wear boots in the rice fields                      | 2.96           | Moderately extent of Practice |
| Wear gloves in the rice fields                     | 2.26           | Limited extent of Practice    |
| Avoid use of water from river when washing clothes | 2.66           | Moderately extent of Practice |
| Wash hands and feet after contact with dirty water | 3.64           | Great extent of Practice      |
| Boils water before drinking it                     | 2.60           | Moderately extent of Practice |

Legend:

|             |                                      |
|-------------|--------------------------------------|
| 4.51 – 5.00 | Very Great Extent of Practice (VGEP) |
| 3.51 – 4.50 | Great Extent of Practice (GEP)       |
| 2.51 – 3.50 | Moderately Extent of Practice (MP)   |
| 1.51 – 2.50 | Limited Extent of Practice (LEP)     |
| 1.00 – 1.50 | Not Practice (NP)                    |

#### *Correlation Between Residents-Respondents Knowledge towards Scistosomiasis and Their Profile.*

Table 3 represents the summary of the correlation analysis in associating the knowledge of the residents of selected barangays of Gandara Samar and their demographic profile such as age; sex; civil status and monthly family income.

In associating the knowledge of the resident-respondents towards schistosomiasis and their age, the coefficient correlation yielded a value of .631 denoting a strong correlation relationship. In ascertaining the significance of the correlation coefficient, the Fisher's t was applied whereby the computed value was posted at 0.000 which turned lesser than the critical value of 0.05 at  $\alpha = 0.5$  and  $df = 98$ . Knowledge of the respondents towards schistosomiasis has significant relationships with their age. Maturity about the cause symptoms, and control measures comes in age. This is worth noting since if there were educated in terms of treatment compliance then there is potential to improved treatment coverage Tiglaio (2002). This result is being strengthened by Erick





Erickson's Developmental Stage that states that as the person grows older they also acquire their specific role depending on their ages. And as they reached the last age they seem to have sense of fulfillment and wisdom. Thus stating that the more we grow old, the more also learned from school and even in environmental experiences. Having that the result is strong in correlation and significant to the knowledge of the respondents. In associating the knowledge of the resident-respondents towards schistosomiasis and their Income, the coefficient correlation yielded a value of .675 denoting a strong correlation relationship. Results were similar to a report from Brazil where low income household is at risk in contracting disease since there income is not to buy the protection equipment against this disease (Uchuo et al., 2000). The results of the study suggested that target population for education should be the younger age groups, and lower socioeconomic class.

Table 9. *Correlation Table in Associating the Knowledge of the Respondents towards Schistosomiasis and their Demographic Profile*

| Variates        | Correlation |                       | Fisher's t-test | Interpretation  |
|-----------------|-------------|-----------------------|-----------------|-----------------|
|                 | rx          | Degree                |                 |                 |
| Age             | .631        | Strong Correlation    | .000            | Significant     |
| Sex             | .083        | Very Weak Correlation | .332            | Not Significant |
| Education       | .043        | Very Weak Correlation | .615            | Not Significant |
| Toilet facility | .024        | Very Weak Correlation | .235            | Not Significant |
| Occupation      | -.037       | Very Weak Correlation | .660            | Not Significant |
| Income          | .675        | Strong Correlation    | .000            | Significant     |

*Correlation Between Respondents Preventive Practices towards Schistosomiasis and Their Profile.*

This section discusses the relationship between the respondent's health practices about schistosomiasis and their profile.

In associating the level preventive practices of the resident-respondents towards schistosomiasis and toilet facilities, the coefficient yielded a value of .524 denoting a very weak correlational relationship. In ascertaining the significance of the correlation coefficient, the Fisher's t was applied whereby the computed value was posted at .000 which turned less than the critical value of 0.05 at  $\alpha = 0.5$  and  $df = 98$ . This signified that the correlation between the level of preventive practices towards schistosomiasis of the respondents and their toilet facilities was significant. This result is again similar to previous studies (Ajanga, 2005). Elimination will also necessitate committed investments in toilet facility as preventive measures which can significantly reduce pathology, it cannot interrupt transmission in a focus where transmission is intense (Ross, 2000). Hence access to improved sanitation are essential in achieving elimination of schistosomiasis (Udonsi, 2000). This approach would also aid in combating numerous other pathogens that are transmitted via the faecal-oral route.

Table 10. *Correlation Table in Associating the Preventive Practices of the Respondents towards Schistosomiasis and their Demographic Profile*

| Variates        | Correlation |                       | Fisher's t-test | Interpretation  |
|-----------------|-------------|-----------------------|-----------------|-----------------|
|                 | rx          | Degree                |                 |                 |
| Age             | .143        | Very Weak Correlation | .092            | Not Significant |
| Sex             | -.098       | Very Weak Correlation | .250            | Not Significant |
| Education       | .044        | Very Weak Correlation | .604            | Not Significant |
| Toilet facility | .524        | Strong Correlation    | .000            | Significant     |
| Occupation      | .059        | Very Weak Correlation | .489            | Not Significant |
| Income          | .031        | Very Weak Correlation | .714            | Not Significant |

Significance Level = 0.05       $df = 98$

*Correlation Table in Associating the Preventive Practices of the Respondents towards Schistosomiasis and their Knowledge.*

It can be gleaned from the table that the coefficient of correlation in the association of the aforementioned variables yielded a value of -.126 denoting a very weak correlation. Further test, to ascertain the significance of the correlation coefficient with the use of Fisher's t-test, the computed value was calculated at .139 which turned greater than the critical value of 0.05 at  $\alpha = 0.5$  and  $df = 98$ . This suggested that the correlation between the



aforesaid variables was not significant. Meaning the practices of the resident-respondents towards schistosomiasis was never influenced by thier level of knowledge towards it.

Table 11. *Correlation Table in Associating the Preventive Practices of the Respondents towards Schistosomiasis and their Knowledge*

| Variates  | Correlation     |                       | Fisher's t-test | Interpretation  |
|-----------|-----------------|-----------------------|-----------------|-----------------|
|           | rx <sub>y</sub> | Degree                |                 |                 |
| Knowledge | -.126           | Very weak Correlation | -.126           | Not Significant |
| Practices | .139            | Very weak correlation | .139            | Not Significant |

## Conclusion

Schistosomiasis has been recognized as an important public health problem among the rural farmers and fisherfolks rural farmers and calls for active intervention. However, there was still a lack of understanding concerning transmission schistosomiasis .There is a need for adequate health education for the on the disease transmission, feasible control strategies as well as other preventive measures. This will increase their knowledge of schistosomiasis. Consequently modifying their and behavioral practices related to schistosomiasis transmission.

Although health education by itself cannot guarantee the control of schistosomiasis, it is a fundamental starting point around which other measures can be built to create a favorable environment for the promotion of higher levels of health consciousness and more critical thinking towards improving the quality of life of endemic communities.

## Recommendation

In order to halt transmission of the parasite in such community, treatment regimen as well as other control programmes such as aw campaign should also target especially younger age groups, and lower socioeconomic class.A more intensified strategy is required in areas where the aim is to interrupt transmission. Sustaining monitoring and control of the residual snails and treatment of the infection sources for schistosomiasis is a crucial strategy.There is also a need for cheap innovative control strategies to combat the disease.Finally urgent control measures with emphasis on the provision of toilets are strongly recommended.

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## Introduction

The City of Iloilo is a major and highly urbanized city in the Philippines. It is the regional center of the Western Visayas as well as the center of the Iloilo-Guimaras Metropolitan Area. In the 2007 census, Iloilo City had a population of 418,710 with a 1.8% population annual growth rate. It is bordered by the towns of Oton in the west, Pavia in the north, Leganes in the northeast and the Iloilo Strait in its eastern and southern coastline. The city was a conglomeration of former towns, which are now the geographical districts, composing of Jaro, Molo, La Paz, Mandurriao, Villa Arevalo, and Iloilo City Proper. The district of Lapuz, a former part of La Paz, was declared a separate district in 2008, (<http://www.iloilocity.org/history.html>).

Even before the Spanish colonizers came, Iloilo had a flourishing economy. In the late 18th century, the development of large-scale weaving industry started the movement of Iloilo's surge in trade and economy in the Visayas. Sometimes referred to as the "Textile Capital of the Philippines", the products were exported to Manila and other foreign places. Because of the rise of textile industry, there was also a rise of the upper middle class. However, the introduction of cheap textile from UK and the emergence of the sugar economy, the industry waned in the mid-19th century. Museo Iloilo is the repository of Iloilo's past, (<http://www.iloilocity.org/history.html>)

In 1970 was a decade of turmoil in Mindanao. The so-called land of promise was besieged with a bloody Muslim secessionist movement met with strong resistance from the military. When then President Ferdinand Marcos declared martial law in 1972, many fled the violence-torn island. In search of a peaceful place to live, some 12 Muslims from Lanao del Sur found their way to the tranquil Iloilo City. On November 5, 1977, the Iloilo Islamic Association was established, the forerunner of what is now known as the Iloilo Muslim Community (IMC), the umbrella organization of Muslims in the city. According to Sammy Hadjimanan, IMC spokesperson and Muslim Federation Region 6 public information officer, nearly four decades after the establishment of the Iloilo Islamic Association, the number of Muslims in the city has grown between 2,000 to 3,000, (Macahilo, 2014).

According to Hadjimanan, Muslims feel welcome in Iloilo City. The Ilonggos are kind and do not discriminate the Muslim community. The very first mosque was located in Quezon Street, City Proper. It was where Muslims gathered to worship. The mosque moved to several areas of the city – Young Men's Christian Association building on Iznart Street and in Pueblo Concepcion, Mandurriao district – until it found a permanent place in Barangay Magdalo, La Paz district. Now, there are three thriving Muslim communities in Iloilo – one in Barangay Magdalo, La Paz; one in Barangay San Isidro, La Paz; and another in Barangay San Pedro, Molo district. Hadjimanan said leaders of these communities meet regularly and discuss concerns, (Macahilo, 2014).

The earliest Muslim migration that the members could attest to is in the 1950's. Reasons for migration are mostly economic. Majority are traders from Lanao Del Sur (Maranaos), though there are Tausugs and Magindanaos but they comprise less than 5% of the approximately 3,000 Muslim population in Iloilo City, (<http://www.iloilocity.org/history.html>).

In the 1970's more migrants came most were single young males. The main reason for the migration was to avoid the then conflict between the Muslim rebels and the government troops during the Martial Law. While there are a number of research studies on the quality of life of ethnic groups or communities in several countries, in the Philippines few have been recorded on how Muslim minority groups rate their quality of life and how satisfied they are with their lives. The Muslim tribe in Iloilo City is an ideal group for this kind of study. Considering the needs and the desires of the Muslim traders to have a better life, living in such urbanized city might give them higher chances to achieve their aspirations and be pleased and contented with life or experience happiness. To look into how this influences their quality of life, this study was conducted. Since, there was no exact data as to the actual number of Muslim traders in Iloilo City, but their spokesperson admitted that there was an increasing number from 2,000 to 3,000 within the four decades.

Further, this study is significant to the local government unit to formulate and establish policies that can strengthen the growth and development of the local economy through trade. It will further establish measures to generate moral revenues from the Muslim traders in Iloilo City which can also a source of information for policy planning of the city.



### **Statement of the Problem**

This study sought to find out the total quality of life of Muslim traders in Iloilo City based on health and functioning, social and economic, psychological and spiritual, and family domains.

### **Methodology**

This study was conducted to determine the quality of life of Muslim traders in the City of Iloilo. The survey research method was employed in the study. According to Gay (2001), the descriptive method of research involves collecting data to answer questions concerning the current status of the subject under study.

The respondents were recruited to participate in this study through the help of their spokesman of the Iloilo City Muslim community, Sammy Hagimanan. The objectives and procedure of this study was carefully explained and the possible recruits to be able to secure the necessary permit to conduct the study in the area.

The respondents included the study were the 63 Muslim traders in Iloilo City, who may either be male or female, were selected through convenience sampling according to the following inclusion criteria: (a) individuals who are Muslim traders; (b) aged 18 years or over; and (c) willing to take part in the study. The individual's rights and anonymity was respected. The purposes of the study, data collection procedure, type of questionnaire to be used, and the right to refuse to participate were explained to those who fit the above-mentioned criteria. Those who are willing to participate were informed and assured of the confidentiality of the data that were collected and that the results were reported as a group.

The community referred to in this study is the place where they can establish their own business. They sell various products like ready to wear, jewelry, cellphone accessories, gadgets and appliances. It is located at the heart of the city together with other business establishments.

The Quality of Life of participants was assessed using the Quality of Life Index (QLI) Generic Version III instrument, which was downloaded from the official QLI website. It was developed by Ferrans and Powers (1984 and 1998), professors at the University of Illinois (Chicago, USA), using different research approaches with its theoretical framework being satisfaction with life. It includes 66 items, divided into two sections, related to four life domains (number of items): Health and Functioning (13), Socio-economic (8), Psychological/Spiritual (7), and Family (5).

The first section is related to the satisfaction the person experiences with various aspects of life, and the second is related to the importance he or she ascribes to the same aspects, (All, 2000; Donpraping, 2006; Hagell, et al, 2006; Yamada, et al, 2005).

Each item is evaluated by the participant on two 6-point Likert scales ranging from "very dissatisfied" (1) to "very satisfied" (6) or "not important" (1) to "very important" (6). The importance scores allow weighting of the satisfaction scores, reflecting both the individual's satisfaction and importance of values. This importance score can be used to partially evaluate response shift. Five scores were generated: an overall score for quality of life and scores for the four domains. The scores range from 0 to 30, (Ferrans & Powers, 1984 & 1998), but no cut-off was established. In this study, however, scores of 14 or less indicate a low quality of life while a high quality of life is indicated by scores of 15 and above.

The data gathered for this research was subjected to certain computer – processed statistical tests. A scoring program (Microsoft Excel Scoring) developed by Dr. Derek McEntee, was downloaded from the official QLI website (Ferrans CE, Powers MJ. 1998) and was used to calculate the total and domain scores. In this program, there are four main columns which are separated by bold lines. Individual's responses were entered and calculations were performed in the smaller columns within the main columns. Blank responses were entered as zero for that particular response, (Ferrans CE, Powers MJ. 1998).

In order to graphically display the QLI scores of the Muslim traders in Iloilo City grouped according to variables, a boxplot (also known as a box and whisker plot) method developed by John Tukey in 1997, (<http://www.netmba/statistics/plot/box> ) was employed. The sampled data in this study depended on the number



of willing respondents thus limits were not set in terms of the number of participants. The assumption of normality (distribution of data) or equality of variance, therefore, was not met. Furthermore, it was not the raw data values (i.e., individual's responses for each item in the survey questionnaire) but rather the weighted scores that were used for calculation of the statistic.

## Results and Discussion

### *Quality of Life of Muslim Traders in Iloilo City*

Since the Muslim traders established their business in the heart of the City of Iloilo and reside within its vicinity, a comparison of their quality of life was done. The comparison was based on their overall quality of life of Muslim traders in Iloilo City and other subdomains of life.

Each Muslim cultural community displays unique and peculiar traits, features, and qualities. These distinctions distinguish one Muslim cultural community from another. All these communities are unified by their Islamic faith, which has already pervaded many aspects of their lives since Islam is a way of life. Regardless of cultural community, all Filipino Muslims belong to one *Ummah Muslimah*, (Anies, et al 2012).

It can be seen from the Table 1 results that the average scores are above 20 indicating a good quality of life of Muslim traders in Iloilo City. However, since the range of values between variables vary, it was therefore appropriate to describe the quality of life of Muslim traders in Iloilo City based on the different variables included in the study.

Evaluation of the quality of life of Muslim traders in Iloilo City is shown in Table 1. Weighted scores vary from as low as 15 to as high as 30. In addition, weighted scores below 15 indicate poor quality of life while those above 15 denote good quality of life.

Table 1. *Weighted Scores of the Quality of life index of Muslim traders in Iloilo City grouped according to variables*

| Overall Quality of Life Muslim Traders in Iloilo City |         |             |        |        |                  |                                              |
|-------------------------------------------------------|---------|-------------|--------|--------|------------------|----------------------------------------------|
|                                                       | Tribe   |             | Gender |        | Type of Business | Cellphone Accessories/<br>Gadgets/Appliances |
|                                                       | Maranao | Maguindanao | Male   | Female | RTW/Jewelry      |                                              |
| High                                                  | 26.06   | 27.82       | 27.82  | 25.83  | 24.85            | 27.82                                        |
| Low                                                   | 17.88   | 18.52       | 17.74  | 18.58  | 18.17            | 17.74                                        |
| Mean                                                  | 21.4    | 20.03       | 21.18  | 21.295 | 21.635           | 21.18                                        |
| Health and Functioning Domain                         |         |             |        |        |                  |                                              |
| High                                                  | 25.73   | 24.92       | 25.73  | 24.42  | 24.96            | 25.73                                        |
| Low                                                   | 18.77   | 18.77       | 15.69  | 18.77  | 17.46            | 15.69                                        |
| Mean                                                  | 21      | 21.23       | 21     | 21.52  | 21.195           | 21                                           |
| Psychological/Spiritual Domain                        |         |             |        |        |                  |                                              |
| High                                                  | 30      | 30          | 30     | 30     | 28.57            | 30                                           |
| Low                                                   | 17.36   | 15.64       | 15.64  | 16.07  | 15.64            | 16                                           |
| Mean                                                  | 22.2    | 21.44       | 22     | 21.715 | 21.575           | 22.29                                        |
| Socio-Economic Domain                                 |         |             |        |        |                  |                                              |
| High                                                  | 27.5    | 30          | 30     | 25.63  | 25.75            | 30                                           |
| Low                                                   | 16.25   | 16.63       | 15.69  | 16.33  | 17.19            | 15.69                                        |
| Mean                                                  | 21      | 19.81       | 21     | 21     | 20.81            | 21.13                                        |
| Family Domain                                         |         |             |        |        |                  |                                              |
| High                                                  | 28.5    | 28.8        | 28.8   | 25.8   | 28.5             | 28.8                                         |
| Low                                                   | 15.8    | 18.7        | 15.8   | 18.7   | 18.1             | 15.8                                         |
| Mean                                                  | 21.1    | 22.2        | 20.9   | 23.1   | 22.95            | 20.7                                         |

### *Overall Quality of Life (QOL)*

#### *Range and Means of the weighted scores for the overall Quality of Life of Muslim Traders in Iloilo City.*

Results of the study showed that the mean scores for the overall and subdomains of the quality of life index were above 15 in all variables included in the study. Thus, it can be generalized that almost all individuals of the Muslim traders in Iloilo City have a high overall quality of life. Specifically, upper outlier are noted in Maguindanao





tribe, male group of Muslim traders and as to type of business, upper outlier is noted in the cell phone accessories/ gadgets and appliances. These groups indicate that they were highly satisfied and contented with their life condition. Despite their being far away from their homeland, and mix themselves with Christian brothers and sisters, have accepted their circumstances in life, specifically the quality of their health and functioning, social and economic, psychological and spiritual, and family conditions.

Figure 1 presents the results of the overall mean scores of quality of life of Muslim traders in Iloilo City.

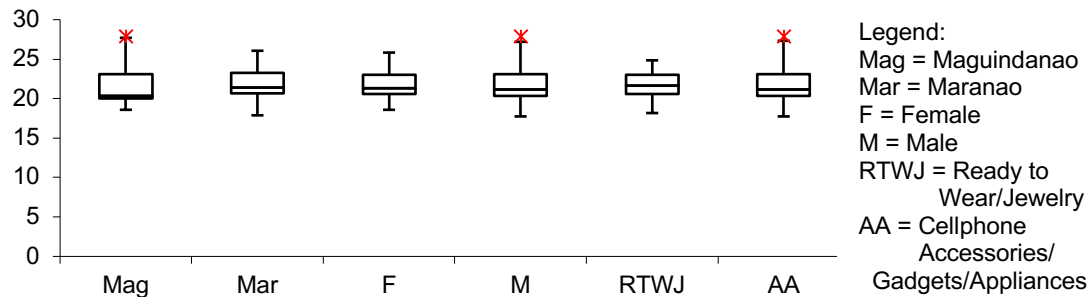


Figure 1. Boxplot presentation of the weighted scores for overall quality of life of Muslim Traders in Iloilo City

#### Health and Functioning Domain

*Range and means of the weighted scores for the health and functioning Quality of Life of Muslim Traders in Iloilo City.*

Observation on the boxplots shows that the range of the weighted scores in the health and functioning domain of the quality of life index (QLI) were observed to vary between variables included in the study (Fig. 2). Almost all individuals are satisfied with the health and functioning aspect of their lives. Further, lower outliers were noted in male group and those engaged in the type of business in Cell phone accessories/gadgets and appliances indicating that few individual are satisfied and contented with their health and functioning aspect of their lives. It is also important to note that health awareness programs and delivery of healthcare services by the City of Iloilo have helped in preventing and alleviating illnesses in the Muslim traders.

Assessment of satisfaction with respect to the health and functioning life domain revealed that high satisfaction with their health, healthcare, pain, energy condition, abilities in taking care of family responsibilities and handling worries that come into their lives, sex life, usefulness to others and recreation. These variables were also considered important by the Muslim traders in Iloilo City. Generally, high satisfaction and contentment were observed in health and functioning domain of the lives Muslim traders in Iloilo City.

It can be argued from the results of this study that Islamic tenets interwoven with traditional practices may have played a role in the perception of the trader Muslim cultural groups of a very good quality of life, (Anies, et al 2012). Majority of Muslim Filipinos' strict observance of Islamic principles and application to their way of life so as not to provoke Allah's displeasure are perceived to prevent the occurrence of misfortunes or illnesses. These groups also practice rituals in order to continually pacify the spirits of their ancestors since it is believed that the course of one's life is influenced by the stance of one's ancestors. Peculiar practices are likewise observed to put a stop to epidemics or to deter illnesses.

Similar findings have been documented in the Quality of Life literature. Robinson, (2004) in a study of older adults and sexuality found positive correlations between quality of life and health status as well as intimacy and sexual activity. She reported that there is a 0.465 increase in the predicted quality of life scores when an individual is healthy. In addition, a small but significant 0.003 unit increase in predicted quality of life scores was observed when there is a one unit increase in the sexual activity aspect. She further cited a study done in 2003 by Bowling et al. who found out that a significant percentage of the participants in their study indicated that health was essential to a "good" quality of life.



This reflects efficient implementation of the policies created by the City government to nurture the health of the Muslim traders. This also reflects a duly proportioned fund for health care, thus indicating good governance on the part of the City local government unit and success of the first and foremost mission of Iloilo City, which shall be a leader in the practice of participatory governance that will speed up and sustain growth and development, in order to open up more and better opportunities for all, and to significantly expand and improve infrastructure, thereby securing a dynamic, safe, peaceful and healthy environment conducive to learning, sports and eco-cultural tourism, <http://www.iloilocity.gov.ph/vmc.php>

Observation on the boxplots shows that the range of the weighted scores in the health and functioning domain of the quality of life index (QLI) were observed to vary between variables included in the study

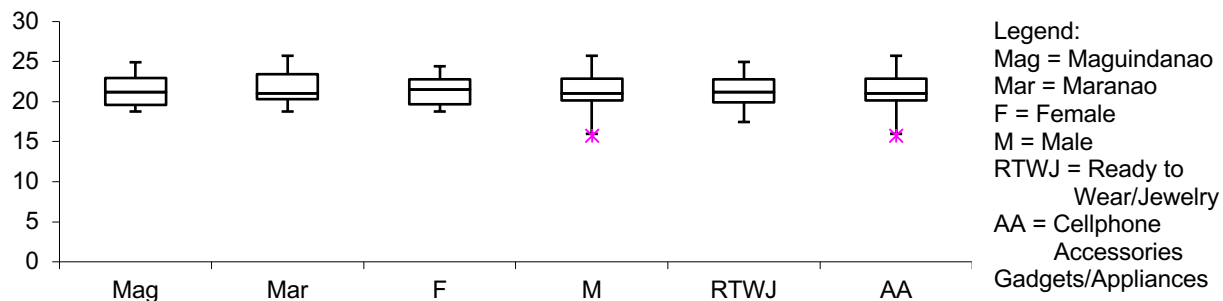


Figure 2. Boxplot presentation of the weighted scores of Muslim traders in Iloilo City in the Health and Functioning domain of the quality of life.

#### Social and Economic Domain

*The range and means of the weighted scores for the social and economic domain of Quality of Life of Muslim Traders in Iloilo City.*

Results revealed that there is none of the individual has a mean score below 15 in this subdomain of the quality of life indicating high level of satisfaction was noted between variables included in the study. Further, outliers were noted in the group of Maranao, male, and those engaged in business in cellphone accessories/gadgets and appliances. Within these groups, some individual have too high level of satisfaction in social and economic domain of the quality of life index of the Muslim traders in Iloilo City.

In evaluating the quality of life of Muslim traders in Iloilo City with respect to the social and economic life domain, results revealed high satisfaction and contentment with their friends, the emotional support they get from people other than their family, their neighborhood, home, having a job or not having a job, educational attainment, and financial needs, (Ferrans & Powers, 1984 & 1998).

Generally, high satisfaction and contentment were noted in social and economic domain of the lives Muslim traders in Iloilo City.

Figure 3 showed that results of the weighted mean scores of Muslim traders with respect to their social and economic domain

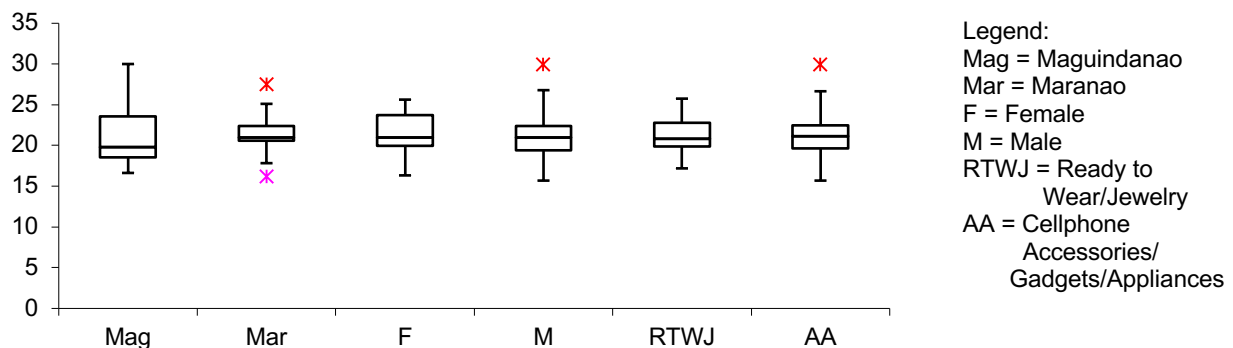


Figure 3. *Boxplot presentation of the weighted scores of Muslim traders in Iloilo City in the Social and Economic domain of the quality of life index*

#### *Psychological and Spiritual Domain*

##### *The range and means of the weighted scores for the social and economic domain of Quality of Life of Muslim Traders in Iloilo City.*

In evaluating the quality of life of Muslim traders in Iloilo City with respect to the Psychological and Spiritual life domain, results revealed high satisfaction and contentment thus giving them peace of mind and general happiness as well as satisfaction and contentment with the personal goals that they are able to achieve, their appearance, and their selves in general, (Ferrans & Powers, 1984 & 1998).

Overall, they were observed to have high levels of life satisfaction with regard to the psychological and spiritual domains of their quality of life. A number of upper outliers were noted in all variables except the female group of Muslim traders indicating that some of the individuals have to have too high level of satisfaction. On the other hand, number lower outliers were also noted in all variables except the Maranao and female group of Muslim traders indicating average level of satisfaction and contentment with their psychological and spiritual domain of the quality of life index.

These results are in agreement with one of the findings of Ferriss (2004), in his study on Religion and the Quality of Life, that happiness is found to be associated with the frequency of attendance at religious services, with denominational preference, and with doctrinal preference, hence arriving at a conclusion that "religion may explain a purpose in life that fosters well-being."

Further, the result reflects strict observance of the core values of Iloilo City that thrives deeply, conscious of our accountability to God centered on family and community, with a commitment to efficiency and excellence nurturing an entrepreneurial spirit and good governance founded on integrity and a responsive citizenry.

<http://www.iloilocity.gov.ph/vmc.php>

Figure 4 showed the results on psychological and spiritual domain of quality of life of Muslim traders in Iloilo City between variables.

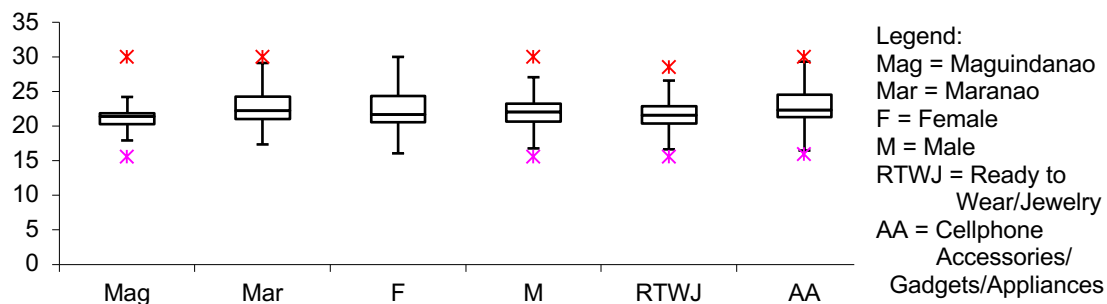


Figure 4. *Boxplot presentation of the weighted scores of Muslim Traders in Iloilo City in the Psychological and Spiritual Domain.*

#### *Family Domain*

##### *Range and means of the weighted scores for the family domain of Quality of Life of Muslim Traders in Iloilo City.*

Assessment of satisfaction with regard to the Family life domain also reveals a high satisfaction with their family's health, children, family happiness, spouse/ lover/partner, and the emotional support from their family, (Ferrans & Powers, 1984 & 1998). Observation of the boxplots shows that all the Muslim traders grouped according to variables have high levels of satisfaction with their family life as shown by their weighted scores which are above 15. An outlier was observed in the group of type of business (Cellphone accessories/gadgets and appliances) indicating too high level of satisfaction and contentment in their family domain.



The family is the basic foundation that is vital to the structure of society, (<http://en.wikipedia.org>. ) thus, social processes such as mutual trust among members, support and shared expectations, (Sampson, 2003) despite difficult family situations can also be assumed to be in operation. These social processes affect the family's health and happiness.

A high level of satisfaction with respect to the family aspect of quality of life, as found in this study, indicates that the said social processes are functioning in the families of the Muslim traders in Iloilo City. Generally, the results imply that Iloilo City community and the Muslim traders live harmonious relationship and promote peace despite of differences in culture and religious views.

The weighted scores of the Muslim traders in the family domain across variables are presented in Figure 5.

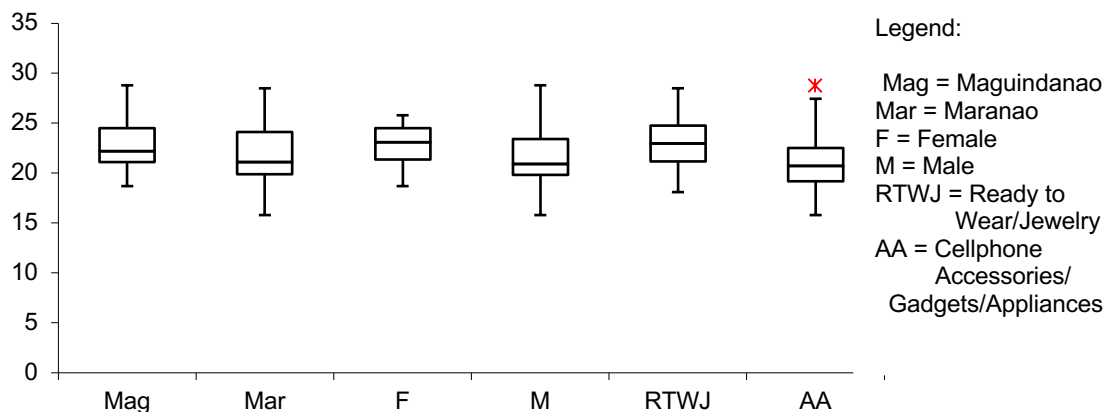


Figure 5. *Boxplot presentation of the weighted scores of Muslim Traders in Iloilo City in the family domain of quality of life index.*

## Conclusions

The Muslim traders have a high degree of satisfaction and contentment of their quality of life living in urbanized city of Iloilo. They accepted their present conditions in health and functioning domain, social and economic domain, and psychological and spiritual domain as well as family domain of quality of life index. This reflects efficient and effective implementation of the policies created by the City government to its citizens especially to the Muslim migrants from Mindanao area. This also reflects a duly proportioned fund allotted for health care, socio-cultural, education, and religious aspects, thus indicating good governance on the part of the City local government unit and success of the mission of Iloilo City, which shall be a leader in the practice of participatory governance that will speed up and sustain growth and development, in order to open up more and better opportunities for all, and to significantly expand and improve infrastructure, thereby securing a dynamic, safe, peaceful and healthy environment conducive to learning, sports and eco-cultural tourism.

The Muslim traders prefer to live permanently or temporarily and establish business in the City for peace and security as long as business opportunities and livelihood are concerned. Further, they can easily adapt to the environment with good reputation and to have their own place of worship despite of living in a purely Christian community.

## Recommendations

The City government should create/establish a Muslim Affairs Office to document the permanent and even temporary residents of Iloilo City. This will serve as a link between the Muslim community and the local government unit. In addition, the City government should establish business center for identification of a Muslim Economic activities for revenue purposes. Likewise, participation and involvement of Muslim brethren to various programs and activities and projects of local government unit in the City of Iloilo should be encouraged to strengthen camaraderie and promote unity between Christians and Muslims community. These will lead to



universal peace and order, security and protection as well as to preserve the culture, traditions and practices and beliefs of both parties.

Further, data should provide some encouragement to policy makers of Iloilo City since it recognizes the importance of improvements in public services, access to markets, and the ability to consume and invest, the differences in priorities it identifies challenges 'one-size fits all' policies.

Furthermore, it is recommended that the City government should invite Muslim community leaders to encourage and assist them through trainings, conferences and seminars to inspire their followers from time to time.

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Treatment A is significant to treatment C but not significant to treatment B. Treatment B is significant to treatment A but not significant to treatment C. Treatment C is not significant to treatment A and Treatment B. The result is rejected.

In terms of texture, treatment A (1/8c) is the most accepted which got the mean rating of 4.533 interpreted as Highly Acceptable. Treatment C got the lowest mean rating of 3.866 interpreted as Very Acceptable. It was found out that there was a significant difference after ANOVA test because the significant value is 0.003 which is less than 0.5 level of significant. Since the result was rejected, Post Hoc test and Scheffe statistical test was done.

The results were the following: Treatment A paired to treatment B and C result was not significant with each other. Treatment B when paired to treatment A and treatment C, there was still no significant between them. But, when treatment C is paired to treatment A and treatment B, the result is there was significant to both treatment A and treatment B. The result was rejected.

### **Conclusions**

In terms of appearance, Treatment B has the highest mean level which means "Highly Acceptable" by the respondents. Based on the result of the ANOVA statistical test, appearance has no significant difference in the different treatments of the Coconut Shell Activated Charcoal Powder.

In terms of aroma, taste and texture, treatment A has the highest mean level which means "Highly Acceptable" by the respondents. Based on the result of the ANOVA statistical, test aroma, taste and texture has significant difference in the different treatments of the Coconut Shell Activated Charcoal Powder.

The most accepted treatment of Coconut Shell Activated Charcoal Powder Chocolate Cookies was treatment A. This implies that the flavour preferred by the respondents were relatively sweet which fits to their taste in different treatments in Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies. Treatment C got the lowest mean rating in all treatments in terms of appearance, aroma, taste and texture. It simply denotes that the lesser the amount of coconut shell activated charcoal powder added in baking Crunchy Coconut Shell Activated Charcoal Powder Chocolate Cookies, the more acceptable it is to the respondents. After cost analysis, the cost of Coconut Shell Activated Charcoal Powder Chocolate Cookies is 9.35 pesos each every 10 grams.

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